

# Chemical Week

August 8, 1953

Price 35 cents



► Fungistat permits lemons to be cartoned without wrapping; target: same for oranges . . p. 32



Research directors worry: Are federal funds enticing tomorrow's technical men? . . . . . p. 35



► Now it's plastics on plastics; synthetic coatings make fancier, more durable molded items . p. 43

The titanium race is on, but there's still no winner; needed: a continuous process . . . . p. 49

► Naval stores pile up as markets dwindle, but research and selling savvy may save the day . . p. 61



# Looking **for sheep's wool under the sea**

THE "WOOL" taken from the ocean bottom is a *sponge*—Keys Sheep's Wool—native to our Florida coast. It's highly prized because it is said to hold more water than any other natural sponge of equal size.

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# Chemical Week

Volume 73 • August 8, 1953 • Number 6

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August 8, 1953 • Chemical Week

## TRY QUAKER OATS' FURFURYL FA<sup>®</sup> ALCOHOL

1

### as a resin ingredient:

Resins made from FA are chemically resistant to acids and alkalies as well as to solvents. FA also reacts with phenolic compounds, formaldehyde, melamine, and urea to form resins with modified properties.

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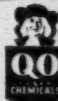
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Furfuryl alcohol is a solvent for nitrocellulose, ethyl cellulose, and cellulose acetate, vinyl acetate, vinyl butyral, and phenolic resins. FA also is a solvent for dyes, and is used in textile printing. Difficultly soluble dyes are dispersed with FA and may then be diluted with other solvents.

Write for a sample and our Bulletin 205 describing the properties of furfuryl alcohol.

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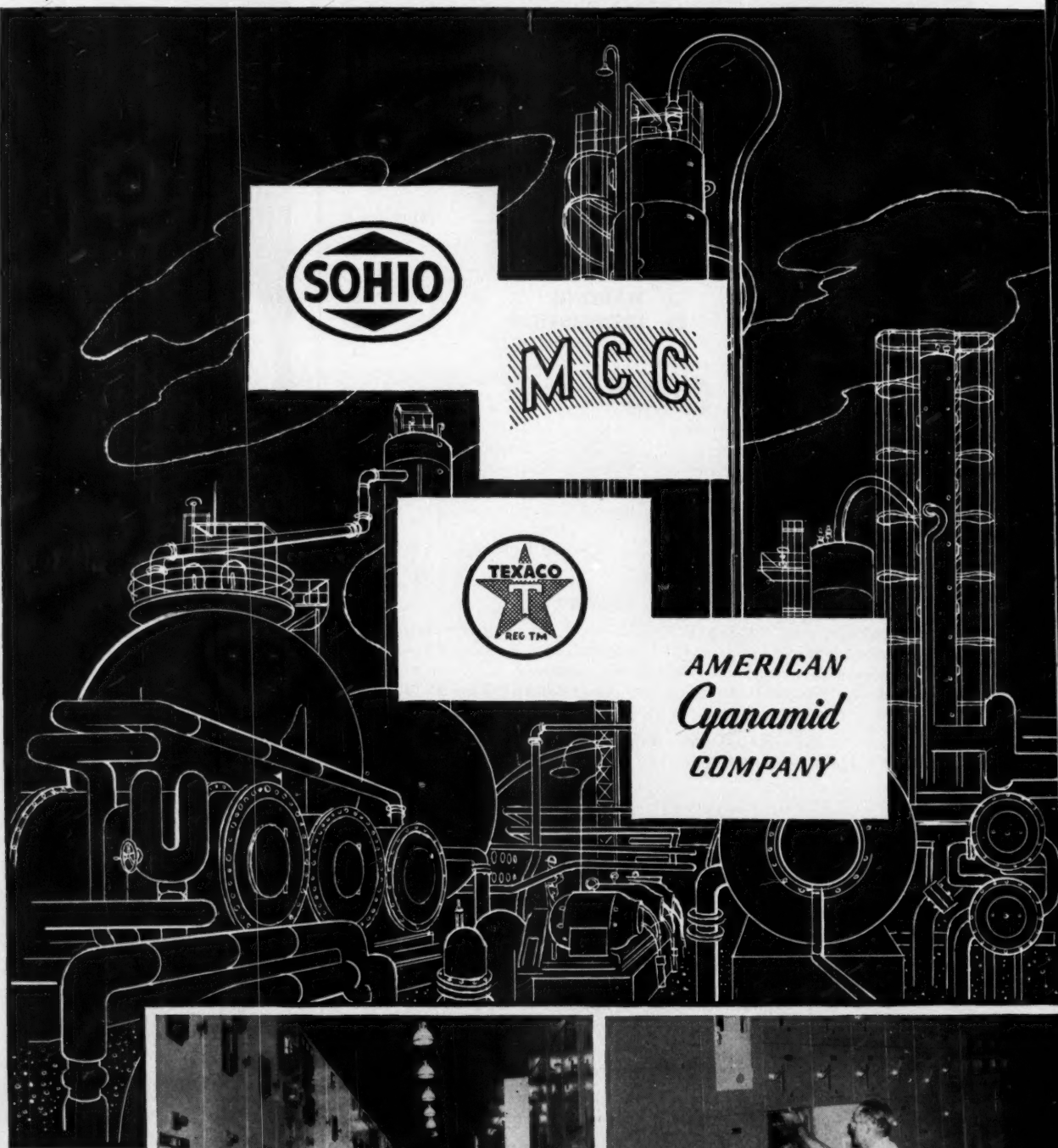
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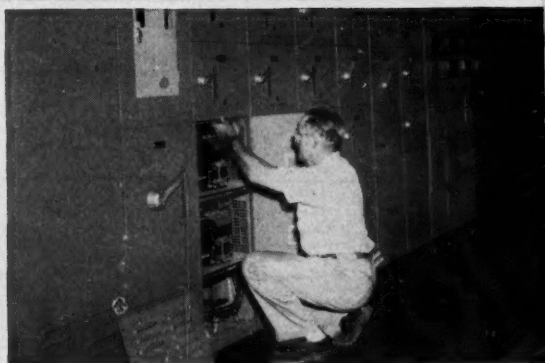
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This Westinghouse high-voltage switchgear automatically and rapidly clears trouble at Standard Oil's Lima Refinery. If there's a momentary outage, the load is reapplied in segments.



Westinghouse control centers minimize maintenance problems and give Mississippi Chemical the advantages of grouped control. Individual units can be installed or removed with file-drawer efficiency.

Petroleum and chemical companies confirm:

## Westinghouse equipment provides dependability

Our engineers help you get dependability by combining Westinghouse electrical equipment with creative system planning. Here's proof.

**Sohlo's Lima Refinery** got power dependability without paying extra for stand-by capacity. Westinghouse engineers helped develop a power system which provides a fast restoration of service after interruptions. Westinghouse supplied a control system that automatically and rapidly clears trouble. This system successfully handled twelve power interruptions during the first nine months of operation, without loss of refinery production.

**Mississippi Chemical** officials called on Westinghouse to help them get a complete "packaged installation" with the best electrical equipment at no extra cost. One feature was that Westinghouse control centers were installed in nonhazardous locations throughout the plant. This gave Mississippi Chemical the advantages of centralized control without paying for more expensive explosion-proof equipment.

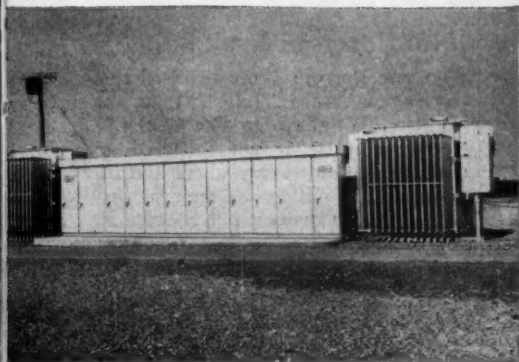
**Texaco's Eagle Point Refinery** got top-system dependability, efficiency and flexibility for future expansion. Westinghouse turbine-generators supply all the power, but there's also a tie-in with the local utility for emergency purposes. Dual-feeder cables carry power to all Westinghouse outdoor load centers. If one faults, the other can handle the full load. All Eagle Point has to do for any plant expansion is add substation capacity.

**American Cyanamid** and Westinghouse engineers worked out a power distribution system that prevents outages. If there's trouble on any feeder, power is switched to another. If a substation faults, other substations carry the load through cross connections. This system can be easily and inexpensively expanded as the plant grows.

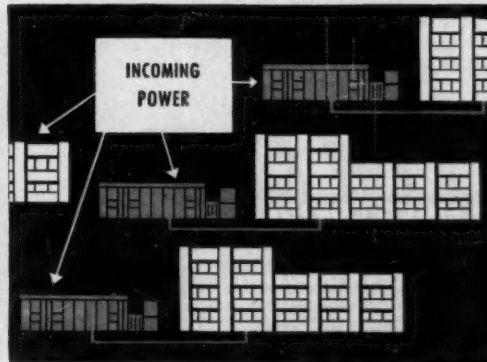
These solutions are only four examples of how Westinghouse equipment and services can meet your power distribution problems. If you'd like more information on the above, or other installations, call your Westinghouse representative. Or write to: Westinghouse Electric Corporation, P. O. Box 868, Pittsburgh 30, Pennsylvania.

J-94992

YOU CAN BE SURE...IF IT'S  
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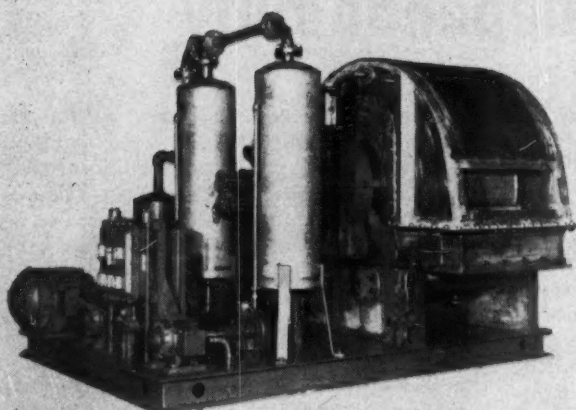
Eagle Point Refinery's Westinghouse substations are complete with switchgear, transformers and circuit breakers in one, compact arrangement. The system is highly flexible and dependable.



American Cyanamid spotted 10 substations throughout the processing area. When new buildings are added, additional substations will be installed without interfering with production.



# Eimco Pilot Filter Stations Give Accurate Data



The machine pictured above is another example of Eimco custom filter design and construction. The filter is installed in one of the country's large pharmaceutical plants producing antibiotics and the construction incorporates Eimco's popular package unit design.

The filter unit is a 4 foot diameter by 2 foot face size — of all type 316 stainless steel materials with multiple cake washing apparatus, vapor tight hood, roller discharge and other features. The filter with all of its accessories is mounted on a single platform with all piping and valves connected, all electrical wiring from motors to a central control panel. The unit arrives at the user's plant ready to run.

When your problem involves filtration consult an Eimco engineer first. Our more than half a century of service to the process industries gives us the necessary background to specify and build the proper equipment to do the best job for you at least expense.

Eimco manufactures all types of filtration equipment — our purpose is to suit the best type to your needs whether it be pressure, vacuum, gravity or any combination of these types.

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## OPINION . . .

### 99% Correct

TO THE EDITOR: We just finished reading the hot melt article (*July 18*).

In our opinion this is an excellent job throughout and you and your associates have managed to get 99% of the many details correct. We appreciate particularly your complete respect of the information that we gave you on an "off the record" basis.

The book has a most interesting format and is sharply written throughout. I guess we had better wake up and become subscribers.

C. E. POTTER  
Illinois Adhesive Products Co.  
Chicago, Ill.

### "Slap in Our Face"

TO THE EDITOR: While your article entitled "Royal Pharmacists" (*July 4*) is entirely correct, I should like to add that, for the moment, here in California, the branch of chemistry mostly affected by the law is pharmaceutical chemistry.

The local pharmaceutical laboratories are visited by the inspectors of the Board of Pharmacy and warned to get busy and hire a registered pharmacist. The answer—that being registered . . . does not imply the knowledge of chemistry, manufacturing and checking—is of no avail, since it is claimed that this can be acquired and learned by the person while he is in charge of it.

The law is on the books . . . and it looks as if the pharmaceutical chemist is on his way out, here in California. . . . If this is what we wanted, here it is—a slap in our face and an insult to our profession.

JACK OSMAN  
Los Angeles, Calif.

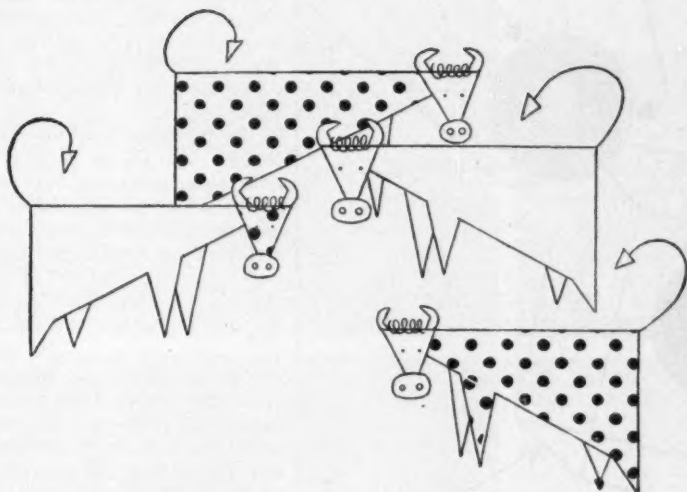
### No Worry on Rock Salt

TO THE EDITOR: I am surprised that you gave space (*July 18*) to the article, "Warming Up For Winter."

My surprise is not intended to camouflage any worry about the future of rock salt for ice removal (excuse my confidence), but because E.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.

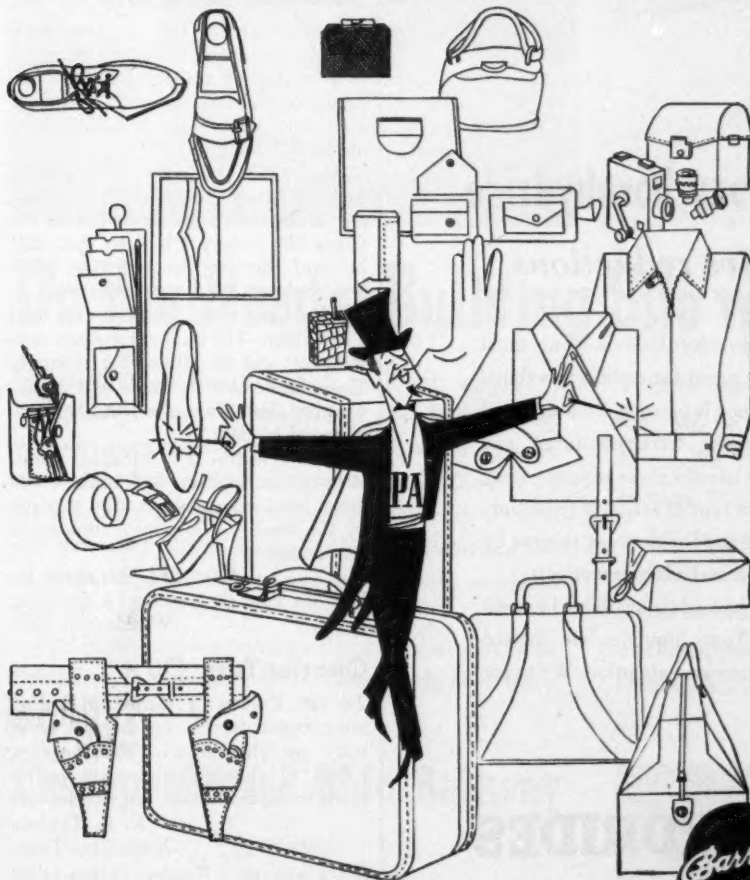
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Barrett technical assistance on application problems is available without cost. Inquiries are cordially invited.



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Right now, STB is being used with great success by producers of fine chemicals and pharmaceuticals.

Sodium Trimethoxy Borohydride is available immediately in pilot quantities. Your inquiries are invited and will receive prompt, interested attention. Write for Bulletin 504-C.



# METAL HYDRIDES

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## OPINION . . . . .

C. 999A was thoroughly discredited . . . by the Joint Highway Research Project of the Massachusetts Institute of Technology and the Department of Public Works, Commonwealth of Massachusetts. The article, "Ice-Free Roads Still Not In Sight" was published in . . . *Public Works*, May, 1953 . . .

The . . . title "Ice-Free Roads Still Not In Sight" is an unfortunate one, as ice-free roads are very much in sight. Rock salt has been making ice-free roads for a great many years, and the usage is still growing.

D. W. KAUFMANN  
Chief Chemical Engineer  
International Salt Co.  
Scranton, Pa.

*We are skeptical, too, Reader Kaufmann; but when a Chicago firm sinks money into a German invention, that's news. Rock Road Construction Co. now admits that "lab tests don't back up all of Rademacher's claims," but it is going ahead with outdoor tests, still has hopes for the process.—Ed.*

## Research Adds 50%

TO THE EDITOR: [In] . . . your issue of July 18, there is a one-paragraph item to the effect that Du Pont has increased the investment in its Circleville, O., plant from \$10 million to about \$15 million.

Apparently this story . . . originated in a talk made by James E. McCook, the field project manager, before the Circleville Rotary Club. In that talk, he said that by the time the plant is completed Du Pont's investment in "Mylar" polyester film would total \$15 million—\$10 million for plant construction and \$5 million for research. These figures are the same that we announced last November and are unchanged to date.

. . . It is still a \$10-million plant, although a total of \$15 million will have been invested in the product by the time it comes into commercial production . . .

ROBERT J. BULKLEY, JR.  
E. I. du Pont de Nemours & Co., Inc.  
Wilmington, Del.

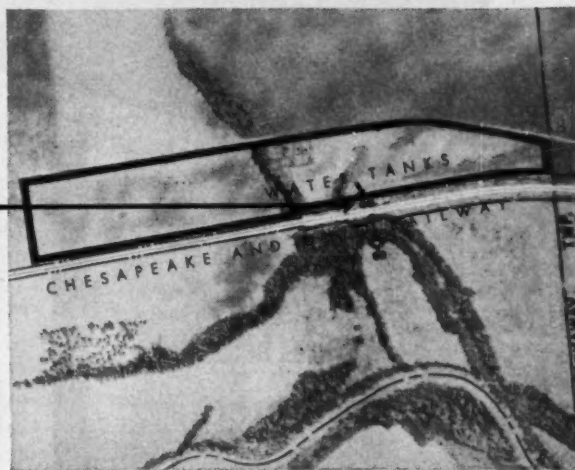
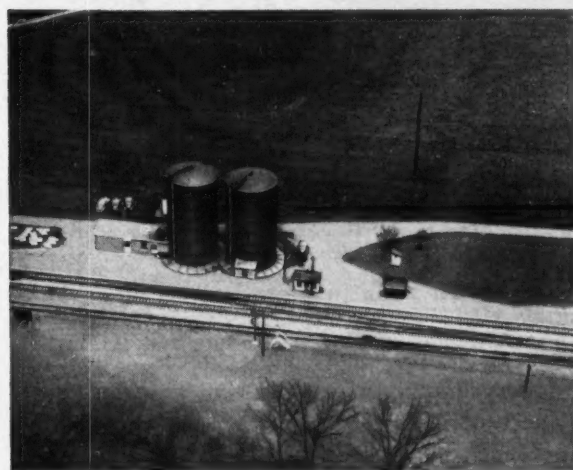
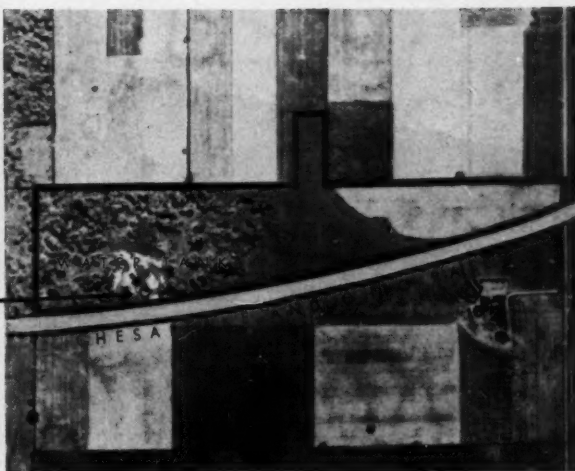
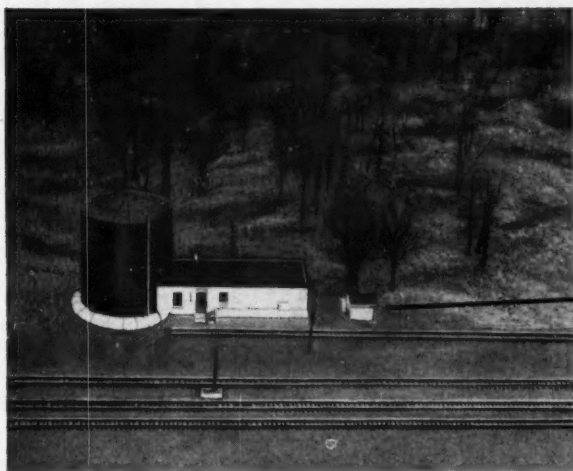
## Quarter-Turn Off

TO THE EDITOR: Perhaps I'm boxing my compass wrong, but in your news story on the Muscle Shoals plant (Aug. 1) shouldn't the plant be located in the Southeast, not Southwest?

K. L. TURNER  
Knoxville, Tenn.

*Right you are, Reader Turner: CW has sent its printer's proofreader (1) a compass, and (2) instructions not to rotate our locations by 90 degrees.—Ed.*





## Do You Need a Building Site with Good Water?

Is your business one that needs pure, soft water?

You see, we used to need water, too. Boiler water. We were very fussy about the kind of water we gave our locomotives. Because of greater use of Diesels, we are retiring a number of wells, pumping plants, tanks and softening plants. Some of these installations are on large, level plots along our railway with access to good highways as well as rail sidings.

For instance, we have two good locations near Columbus, O. One of them 16 miles north, near Dela-

ware, O., has a plot of 45 acres with adjoining property that can be acquired; and another 30 miles south at Circleville, O., has 90 acres. Others are available in Indiana, Michigan, Virginia, West Virginia and Ontario.

Tell us how much land you want and where you want it. We'll offer you a complete installation for much under its reproduction cost. For further details, write to Chesapeake and Ohio Railway, Cleveland 1, Ohio, Detroit, Michigan, Huntington, West Virginia.

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## NEWSLETTER

It would be hard to beat this year's first-half business. Enough January-June figures are now available to chart the chemical industry's upward climb in the first six months of 1953. Almost all the indexes—sales, physical volume of output, profits, capital spending—were up over last year's corresponding period.

Caution signals are implicit, however, in price, inventory and foreign trade figures. Prices were steady and a weakening seems to lie ahead, exports are lower and imports higher, and inventories seem to be heading toward an all-time high. Not serious signs, these, but they bear watching.

•  
An expansion, a new commercial process, a new patent—all by Du Pont and all significant this week:

- Aerosols and air conditioners are both splurging ahead, and to keep pace the company is sinking an additional \$2 million into its Deepwater Point (N.J.) and E. Chicago (Ind.) Freon propellant-refrigerant plants.

- A new nonelectrolytic hydrogen peroxide manufacturing process is now embodied in a commercial plant at Memphis. Du Pont is mum on details, but many industry experts think it is using a modification of the German process (Chemical Industries, June, 1946) whereby 2-ethylhydroanthraquinone reacts with oxygen to give hydrogen peroxide and 2-ethylanthraquinone. The latter is catalytically reduced with hydrogen and recycled.

- Further removed from large-scale reality is a significant polymer process on which the firm recently obtained a U. S. patent (No. 2,632,014). It's based on the Fischer-Tropsch process using carbon monoxide and hydrogen, but by varying the ratio of the gases and the reaction conditions, Du Pont has been able to produce a high-molecular-weight polymethylene wax. Over-all yield isn't revealed, but the wax accounts for 80% of the nongaseous products, while the more common Fischer-Tropsch products—C<sub>2</sub>-C<sub>10</sub> alcohols—make up less than 12%. This polymer is higher-melting than polyethylene, is made at lower pressure.

•  
But polyethylene—without the "m"—is still many jumps ahead. Big news in this field is purchase by Continental Can Co. of the Chicago fabricator firm, Elmer E. Mills, following hard on the heels of its acquisition—for \$10½ million—of Shellmar's flexible packaging division. Tin cans, squeeze bottles or cellophane film—Continental is now squarely behind all of them.

•  
And another plastic—high-impact polystyrene—will get a 30 million lbs./year boost by Monsanto. Further facilities at Springfield, Mass., will be ready in about eight months.

•  
You'll hear more about phenyldimethylurea. It's a herbicide that General Chemical Division has been quietly developing for several years, is now readying for commercial production under the tradename, Urab. Half a pound per acre gives adequate weed control in some crops, and eight pounds completely denudes the soil—for railroad and power line right-of-ways, industrial areas, etc.



General Chemical figures, too, in a process advance just developed by Minnesota Mining and Manufacturing. The 3M Co.'s trifluoroacetic anhydride is touted as a superior catalyst for esterification reactions, but its dollars-per-pound price tag has warded off would-be customers.

Now 3M has devised a means of reconvertng the acid to the anhydride with General Chemical's Sulfan—a stabilized sulfur trioxide. The fluoro acid can thus be recovered from the reaction medium, dehydrated to the anhydride, and recycled.

•

While 3M's chemists were working out this process, its directors were laying plans, approved this week, to buy Irvington Varnish & Insulator Co. (Irvington, N. J.). It's a \$7-million deal whereby Irvington Varnish's stockholders will get 3M stock and cash. The acquired firm will become a 3M division, but its personnel and policies will stay the same.

Behind the merger is the two firms' mutual interest in electrical insulation materials.

•

It's still in a preliminary stage, but it's common knowledge around Wall Street that Stauffer Chemical is arranging for outside financing through Morgan Stanley & Co., brokerage house. The "package" most commonly mentioned is \$15 million in bonds and \$7 million in common stock.

But more interesting to the industry than details of the deal is the fact that vital statistics on Stauffer, until now a closely held concern, will be bared. Figures now bandied about—e.g., that its sales are about \$80 million a year—are pure speculation; but a prospectus will cross all the t's and dot all the i's.

•

Fluoridation is still a hot political potato. After five years (lacking four months) of pulling and hauling, Milwaukee finally got sodium silicofluoride in its municipal water this month. But just last week the anti-fluoridaters got the city council to reverse itself; it voted 15-12 to stop the program. The mayor says, however, that he'll veto, and it would take 18 votes to override. In the meantime, in goes the fluoride.

But harmony prevails in Denver. After hearing two hours of hot debate among a dozen citizens, the council there voted unanimously to fluoridate the one-quarter of Denver's water that is fluorine-deficient.

•

Ramifications of foreign trade know no bounds. A Portland (Ore.) importer-exporter sold briquetted carbon to a Japanese importer-exporter, who sold it in turn to a chemical firm. The processor converted it to calcium cyanamide, sold the fertilizer material to the Japanese trader, who in turn sold it to the original Portland man. The initial cyanamide shipment was 50 tons, and it took the long way around from Portland Gas & Coke, which made the briquettes, to Pacific Supply Co-op, which bought the calcium cyanamide fertilizer.

•

Think you've got troubles? Hear this tale of Love Chemical Co. (Louisville, Ky.), whose safe was broken into this month and robbed—not of money, but of a couple of dozen high-school track medals won by the company president's son. Also taken was a \$50 check writing machine.

Two nights later thieves came again, pilfered the check writing machine bought to replace the first one—and nine more medals.

... The Editors



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ONE  
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another**

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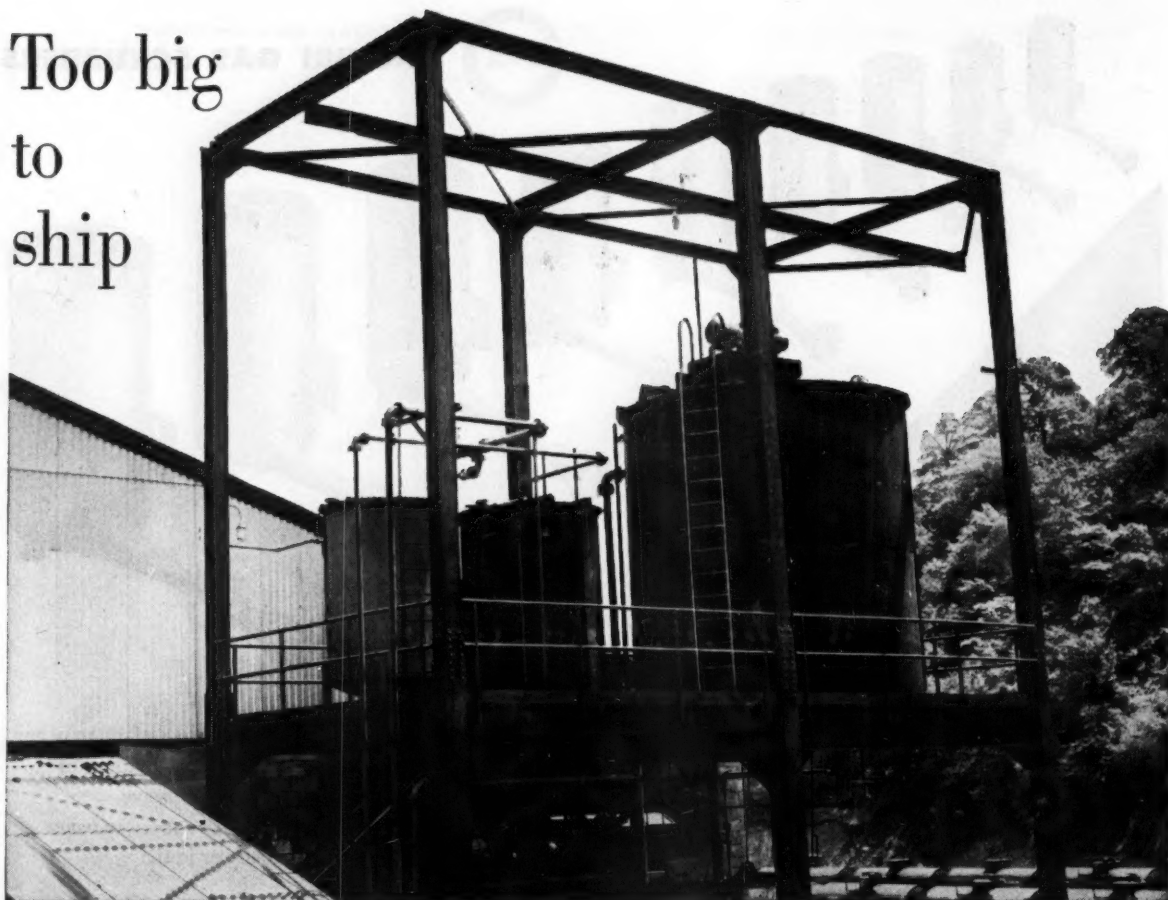
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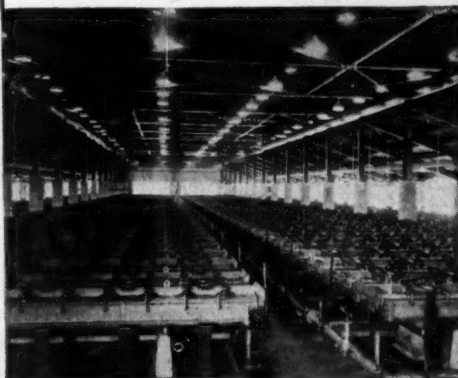
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## BUSINESS &amp; INDUSTRY . . .

## Reprieve—and Danger

Because of a cut in its appropriation, the Food & Drug Administration won't be able to do as much during the coming fiscal year as in the one that ended June 30.

Congress last week gave FDA about \$5.2 million. It had asked \$5.9 million—up from the \$5.7 million it had last year. And for an agency in which most of the money goes to payroll, such a cut looms large.

The main effect of the decrease will come in FDA's policing of "economic violations," the lowest of the three categories set up by the agency. This involves checking on gyps and swindlers.

There will be some cutback of agency work in checking on sanitary violations, though little in its top-priority category—law violations that involve hazards to health.

**No Drug Delay:** But while there may be some abatement of its enforcement program, don't look for serious changes in its regular laboratory and headquarters work in Washington. Approval of new drugs and certification of antibiotics are two activities that have a high priority with the agency.

FDA Commissioner Charles Crawford, in testifying before Congress, expressed a desire for more personnel in order to carry out the agency's duties under the 1938 Food, Drug and Cosmetic law, and also to do a better job on the responsibilities it has been given since then.

For example, when Congress took the federal tax off margarine in 1950, it gave FDA the job of policing oleo-for-butter substitutions. While it set a maximum fine of \$5,000 for each day of violation, it gave FDA no money for enforcement. The agency has secured only one conviction, resulting in a \$10 fine.

**But Research Suffers:** Many kinds of basic research carried on by FDA are due for a slowdown. One such project is an investigation of why some substances penetrate the skin and mucous membranes and produce injuries. Definite answers here could greatly benefit cosmetic science.

But such research projects, to say nothing of FDA's "miscellaneous" enforcements, will be curtailed.

Staffwise, the agency has already had to fire about 60 of its 1,000 employees (*CW Newsletter*, July 18); others that quit or retire won't be replaced. If possible, though, FDA's Crawford will try to keep all the others on his staff.

For industry, which has often chafed under what it considered a too-stringent control, such a cut might be



FDA'S CRAWFORD: Weaker brake on gyps and swindlers.

considered a welcome relief from too much bureaucracy.

But it is balanced by a potential problem: with the slowdown in FDA's policing of violations, irresponsible companies might cut corners too sharply, thus perhaps irreparably damaging the reputation of the entire food and cosmetic chemicals industries.

## Gulf Coast Retarder

Construction projects running into hundreds of millions of dollars and including chemical and petrochemical expansion jobs are being delayed by strikes of five AFL trades-unions along the Gulf Coast in southeast Texas.

The Gulf Coast Construction Employers Council has filed unfair labor practice charges against two of the unions, and the situation has been in-

vestigated by three members of the Texas attorney general's staff. About 45,000 workmen have been idled although only about a tenth of that number are actually on strike.

In the Houston area, contractors who do business on a nationwide basis are going ahead with their jobs, while local construction companies have been handcuffed by a strike being waged by some 1,200 operating engineers, 800 ironworkers and 180 sign painters. The national contractors have agreed to pay their own employees, retroactive to July 1, whatever wage increase is finally granted by the local contractors.

Only one large chemical job has been affected in the Houston area—the Dow works at Freeport, on which one local contractor has been made idle while the bulk of the project is being carried on by four national contractors.

Other plant jobs around Galveston Bay—such as Sinclair Refining, Carbide and Carbon Chemicals, Pan American Refinery, Shell Chemical and Texas City Chemicals—are proceeding on schedule.

But there's a different situation farther east, in the Sabine Lake area next to the Louisiana border. There, with the carpenters and millwrights on strike, the shutdown of construction work has been complete. Projects halted include those at the Du Pont, Allied Chemical & Dye, Jefferson Chemical, Gulf Oil and Texaco plants.

## Resin Peace Treaty

While the industry waited for Reichhold Chemicals and American-Marietta to resume their scrap in U.S. District Court in Seattle (*CW*, Sept. 13), the adversaries quietly got together out of court and settled their dispute at a considerable saving of legal expenses.

Although elephantine figures were mentioned in the two suits—American-Marietta had sued for \$2.5 million for alleged patent infringement, and Reichhold had parried with a counter demand for \$11 million on alleged unfair competition—the lawyers say the settlement involves an amount that is "not substantial." Each company paid its own court costs.

## Wanted at Once: Top Talent

It's no easier to track down any one reason for the current shortage of top-running executives in the chemical industry than it is to trace footprints through a mob. All sorts of trails crisscross the path, seem to offer fresh causes for the dearth of talent.

On one point, this CW survey reveals, there is universal accord. Everyone—management consultants and companies alike—finds top-flight candidates hard to ferret out, harder to lure into the fold. Best guess: the pressure will continue for some years to come, at least until management development programs begin to pay off at top levels.

**Why a Shortage?** Most commonly offered reasons for the paucity of qualified executives hark back either to the beanstalk growth of the chemical industry or to the ever-growing demand for acute specialization during "training" years—often a barrier to promotion into high posts. Also suggested:

- "Chemical companies looking for the right man to fill a top niche are apt to demand too close a fit." Since the stakes are high, no company can afford to dabble with a dark horse, or wait for latent talent to blossom forth. They want the perfect candidate—a cross between a crystal-gazer and a top-notch administrator—and they want him in a hurry. The reasoning: at today's hot pace, odds on success stack up heavily for the company spearheaded by such a man; with all other factors equal, he makes the difference between a winner and an also-ran. But there just aren't enough paragons around. "When chemical companies come to face the fact that perfection is an ideal, not a reality, they relax their requirements. Then it's easier; . . . we can always find a competent man, though not the perfect one."

If time isn't pressing, the job gets simpler, too. But unhappily, says one management consultant, filling a gap is almost always surgery, not preventive medicine. The hole's there to be filled, and there's pressure from stockholders and disquieted boards of directors to plug it immediately.

- Remarks one company ruefully, "When you're forced to look for executive talent outside your own administrative setup, you're tacitly admitting to one of two deficiencies. It's a case either of bad planning or of good planning gone awry." The latter might be due to death of key personnel, war service, etc.

- Charges another: "As far as the

shortage of competent sales managers is concerned, the picture's clear." Selling in recent years has been comparatively duck soup; sales managers have tended to go soft, have expected business to come to them. With the recent shift in emphasis, however, older company leaders are beginning to feel uneasy. They want a practiced hand at the wheel now—one who's had to get out and push, and knows all the tricks of the trade.

- Ventures a fourth: "This is getting to be more and more an age of decentralized management." Blame for the shortage rests on that very fact. When you create autonomous divisions or subsidiaries, you create a need for more executives to go around. Development just hasn't yet caught up with the new demand.

- One management consultant firm has worked out in cold figures\* the degree to which the shortage has hit the chemical industry. It finds that while chemical companies are losing executives 17.9% more slowly than before the war, they are being compelled to add them 37.3% faster. The defections certainly cannot be laid at the feet of death and retirement alone, rather must be considered—in part, at least—a case of "controllable" separation, a loss on which companies can attempt to throw on brakes.

The longer they dally, the tougher the problem becomes. Reason: once a company becomes known in the trade as a good "stepping stone" it's ability to hold first-class executives becomes precarious.

**What's Being Done?** Faced with a key position to fill (and convinced there's nobody within the organization to drop into the slot), the average chemical company casts about in more or less random fashion for some six months, mentally sizing up various candidates for the job. Most often the position open is directly in line for succession to the "throne"—at whatever level that may be. The president, typically, is looking for a crown prince; there's nobody around he considers able to wield his scepter.

But there's a limit to how far such reconnoitering can go. "Gentlemen's ethics are to be considered," flatly states one board chairman. "You just can't go out bluntly and ask for the opposition's best prospect."

When the search for "the right man" has turned up nothing or when the pressure gets too severe, manage-

ment consultants are usually called in. "When we get the job," admits one consultant, "the lines are drawn pretty tight." The men in charge think they know precisely what they want; they're sure they don't have it available; and they want it in a rush.

Problems are manifold, even for the experts. Every search has its own peculiarities; every specification list is in part dictated by the personality of the top man in the company. Chief obstacles met:

- When it's a small company looking for a man, the natural place to seek him is within the rank of a larger outfit. Such a man, by virtue of his experience, is likely to be more broadly qualified in various facets of the industry. But the problem is to provide adequate compensation (above and beyond the additional responsibility and title gained) to make his move worthwhile. Loss of deferred compensation plans alone is a serious monetary hazard, often is a deciding factor against company-hopping. To get their man, a small firm may be forced to part with considerable stock, must supply a significant capital-gains income, or a well-loaded bonus plan.

The smaller the company, too, the greater the time element looms in importance. Creaking machinery on a small scale, unlike that of an industrial giant, just won't carry the load very long.

- Age is an ever-growing practical consideration in filling an executive post. Pension plan costs soar higher, the older the candidate.

**Due to Continue?** Most experts on management shortage problems concede that the dearth should ease when management development programs start to pay off at high echelons some 5-10 years from now. Meanwhile, since there's a premium on talent, it would behoove those in control to check up on what they've already got. Sometimes called "executive appraisal," sometimes called organizational charts, the system can be made to work, vouchsafe consultants. Too often chemical companies have hastily jumped to the conclusion that they can't fill the highest brackets from within their own organization. The fact is, they've really lost track of what they have. Any charge of shortage must first take into account the assumption that all possibilities have been considered and cast aside.

There is a shortage—that's clear. But is it all because of expansion? Management consultants think not.

\* See Booz Allen & Hamilton, "The Growing Problem of Executive Turnover."



FMC'S HART: Like basketball teams from the same college, we're always scrapping among ourselves . . .



... but let outsiders say something about the college, and we're . . .

## ... Not Four, but One

When much of your expansion in the past decade comes through acquiring going companies, you have a set of problems that a "straight" growth concern doesn't face.

These problems are especially acute for such a firm as Food Machinery & Chemical, which got into the chemical business by acquiring four companies—two of them in the past three years.

The weight attached to post-acquisition problems was pointed up this week by the arrival in New York of Al Loeffler, formerly a Monsanto divisional development director, to help FMC's Executive Vice-President Ernest Hart whittle down these posers:

What is the best setup for FMC's chemical operations? What functions should be consolidated, what central-chemical divisions administrator, Hart ized, and what only coordinated?

Of course, in the year he's spent as

has thought up and put into practice some pretty good answers. In sum: "The first thing to know is what tools you have and where they are. It's our job in administration to select the right tools and hand them to the right people."

In practice, though, it isn't this simple, as Hart is first to admit. Unexpected events, such as the death of Buffalo Electro-Chemical President Charles Buerk, could seriously foul the warp of the coordination fabric. Chemical coordination has always been a problem for the parent corporation, since its chemical business is a rowen growth. In 1943, the then-Food Machinery Corp. acquired Niagara Sprayer & Chemical as an adjunct to its pressure sprayer business. Westvaco was merged in 1948, and simultaneously, the parent corporation became Food Machinery &

Chemical. In 1950, Ohio-Apex came into the fold, while 1952 saw the entry (as in each previous case, via exchange of stock) of Buffalo Electro-Chemical.

Up to about a year ago, FMC's chemical and machinery divisions were coordinated by Joseph Cary, head of the firm's executive committee. Since then, the divisions have been separated into two all-but-independent operations, each under an executive vice-president.

Hart, who moved up from Niagara president into one of these posts, organizes his domain in this manner: his four manufacturing divisions are autonomous, operationwise; aiding in administration are six staff offices—technical coordination, general development and planning, personnel and industrial relations, patent and legal, construction engineering, and sales coordination. Not all are functioning yet.

**R-D Round-Robin:** Technical coordination is, perhaps, the most immediately important, since it circulates research and development reports between divisions. This channel is also used to set up cooperative projects. If Ohio-Apex were developing a product in which oxidation is a key step, it might call on Becco to help. Niagara and Westvaco, in a current herbicide exploration program, have agreed that Niagara handle the biological investigations in its new laboratories, while Westvaco concentrates on chemical development.

**Crystal Gazing:** At present, the company requires division presidents to submit one-year and five-year budgets. When the general development and planning staff is fully set up, much of this forward planning can be referred to it.

Safety, personnel and labor problems are handled at the divisional level, under the eye of a coordinator who makes sure that decisions keep within broad company policy. But there is no rigid and detailed pattern that divisions are expected to follow.

The chemical divisions may set up a joint patent staff. This would be about the only concrete instance of



outright centralization. One duty here would be to discover whether other divisions can contribute material that can strengthen a patent application. Legal activities, while coordinated, will remain currently at the division level.

**Unbewildered Builders:** The construction engineering staff will see that different divisions learn each other's engineering short-cuts. A Niagara official discovered purely by chance the solution to one of his engineering problems when he walked into Westvaco's Newark, Calif., plant. Hart hopes such accidents will become standard operating practice.

Sales coordination, he feels, will bring more cross-marketing agreements between divisions, like those now in effect. Westvaco, for example, is an Ohio-Apex agent on the West Coast. Niagara buys Westvaco's BHC, formulates it with its own DDT, sells the mixtures.

The chemical divisions do no tax work, have no financial worries, *per se*. The books go directly to the company comptroller at San Jose, Calif., as do requests for money to finance, say, Westvaco inventory, purchases and accounts receivable.

**Intramural Rivalry:** But despite such joint efforts, there is stiff competition between divisions. If Hart has \$100,000 available, "we might have quite a hassle over who's going to have what part of it for what."

Too, if a division develops a good engineer, it may have to watch its step to keep from losing him to another division.

The solutions which Hart and cohorts find for small problems such as these are, in total, as important as the numerically fewer decisions that involve multimillion-dollar expansions.

Growthwise, FMC's chemical divisions have expanded more rapidly than its machinery interests. (Of course, they have gotten a major part of the company's expansion money.) With this growth, the chemical portion of company sales has expanded to where, in 1952, it came to about 51% of FMC's nondefense sales. Hart estimates present percentage at 53.

Too, there are growth situations ahead in the different divisions that could raise it much higher in the next five years. One estimate: 75%.

Will most of this growth come from present divisions or through further acquisitions? "Well," smiles Ernie Hart, "in time, we'll get what we want with what we've got, but if we see a chance to accelerate, we'll take it. The older ones of us with the company sure would like to see our predictions come true."

## Cleveland Rendezvous

Only big-time chemical labor union convention this year will begin next Monday morning in Cleveland's Hollenden hotel, with forthright, plain-spoken H. A. Bradley holding the gavel before some 400 delegates of the International Chemical Workers Union (AFL).

A major item in the convention schedule will be Tuesday's pension and welfare conference, with a discussion on contributory and noncontributory plans. "Among the very important matters to be considered by this convention," Bradley declares, "are organizing plans, labor union education, and political action."

One hint as to the complexion of contemplated political action is seen in the announcement that maverick Sen. Wayne Morse, Oregon independent liberal, will be one of the speakers.

Other major figures on the speaking program are Dr. Richard Weinerman of San Francisco, advising the delegates on "Negotiating Health Plans," and Nelson H. Cruikshank, Washington, director of social insurance activities for the AFL.

Although ICWU has declared itself to be in favor of racial equality, it appears that the convention committee didn't find facilities in accord with that principle. Negro delegates will stay at a separate hotel, the Majestic.

## COMPANIES . . . .

Edgar Brothers Co., Metuchen, N.J., and McIntyre, Ga., has completed a stock recapitalization involving a new issue of 100,000 of common stock—the first time since its incorporation in 1899 that it has made stock available to the public. Funds will be used primarily to install processing equipment for spray-dried products.

One company reveals an acquisition, another a liquidation:

- New Idria Mining and Chemical Corp. of Calif. has taken over Metalsalts Corp. and its subsidiary, Dar-Syn Laboratories, Inc. with the complete acquisition of its common stock. Itself responsible for Metalsalt's formation in 1944 ("for the purpose of providing an integrated system of mine-to-customer distribution of refined mercury"), New Idria views the purchase as a means of providing closer coordination between the activities of both companies.

- Lithium Corp. of America, Inc., Minneapolis, Minn., is liquidating its wholly owned subsidiary, Metalloy Corp., which has until now operated

as the chemical and sales division of the parent company. Administrative personnel will be retained, and all business will be transferred to the parent company's name.

- Celanese Corp. of America has started moving two more divisions to Charlotte, N.C. (CW, Feb. 7, '53). Latest migrants: engineering and purchasing personnel. They plan to join the textile division and office services in a brand new \$5-million office building, now under construction on the outskirts of the city. Completion date: Jan. 1954.

## EXPANSION . . . .

**Plastics:** Reichhold Chemicals, Inc., plans to build a \$1-million plant in the Kansas City area to produce resins used in laminated glass fiber products. Construction will start as soon as a labor dispute is settled. It has tied up Kansas City building for nine weeks.

Reichhold will use water transportation to ship in about half its raw materials—some 25,000 tons/year—to the new plant.

- **Ammonium Sulfate:** The Piedmont Chemical Co. is scheduled to bring its new ammonium sulfate plant at Athens, Ga., onstream early this month. Annual output will be around 10,000 tons.

- **Silica Alumina Catalyst:** Bay Chemical Co., Weeks Island, La., has opened its multimillion-dollar silica-alumina catalyst plant, will turn out some 450 tons/month (made from muriatic acid and steel slag residue). Major use: in oil cracking.

- **Ammonia:** Commercial Solvents Corp.'s ammonia plant facilities, recently completed at Sterlington, La., will double company output of nitrogen, to an estimated 100,000 tons annually. Additional facilities completed and in operation: units for nitrogen solutions and crystalline ammonium nitrate.

- **Phthalic Anhydride:** Barrett Div., Allied Chemical & Dye Corp., has brought its \$5-million phthalic anhydride plant at Calumet, Ill., into full operation. Output, when combined with that of Barrett's Philadelphia plant, still under construction, will eliminate the possibility of a shortage of the material in the U.S. for some years to come, say company officials.

Barrett will supply its own naphthalene, basic raw material for the product.

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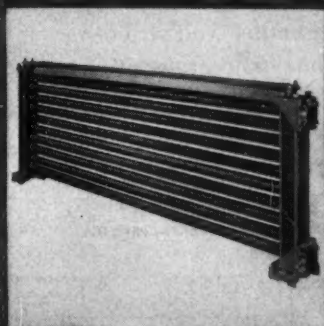
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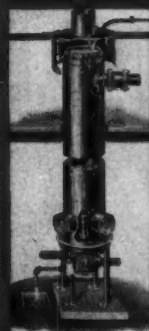
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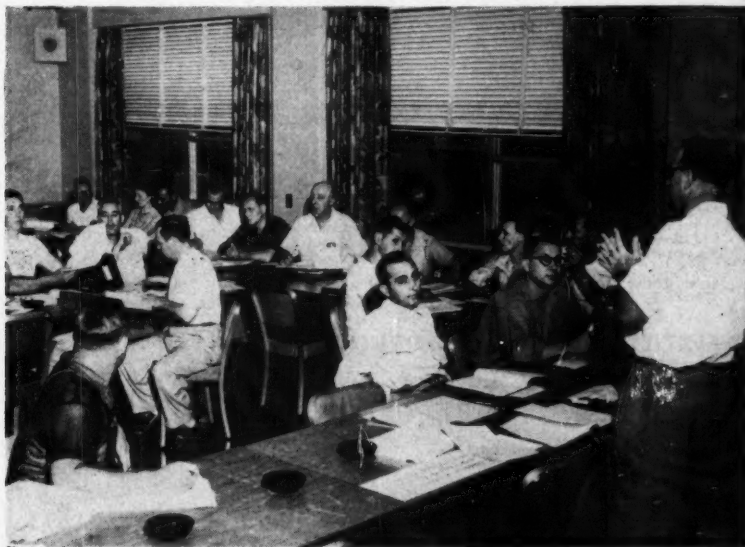
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## Cramming for Parleys

One theory is that "playing house" gives little girls the practice that makes them more than a match for their future husbands in domestic relations. And a similar theory is that "labor institutes" give union officials a knowledge of collective bargaining techniques that enables them to get the drop on their employers in industrial relations.

In the chemical field, two of the three principal labor unions subscribe enthusiastically to this theory. The International Chemical Workers Un-

ion (AFL) and the United Gas, Coke & Chemical Workers (CIO) both attach great importance to their policy of holding training sessions for local union officers and shop stewards. On the other hand, District 50 of the United Mine Workers—also with a big membership of chemical employees—is a total abstainer when it comes to labor schools; UMW President John L. Lewis says his staff should devote all its time and talent to actual organizing and bargaining, with no time off for dress rehearsals.



**NOW, HERE'S A TOUGH ONE:** The class in "handling grievances" ponders new tactics to use in those chemical plants back home.



**GAS-COKE'S 'FACULTY':** Conferring between classes at Ithaca institute—Jack Curran, Aubrey Bruyee, Joseph Appelbaum, Cecil Martin, R. P. Buchanan.



FRED MOHN

**CORNELL'S CAMPBELL:** For both labor and management, classes and data.

**Craftier Bargainers:** The purpose of these training sessions, which range from two to seven days in length, is to help union people cope with company representatives in contract and grievance negotiations. Company representatives frequently have had formal instruction in labor relations, while local union spokesmen usually are chosen from among rank-and-file employees who often have less than high-school education.

This year's labor school program of the ICWU, mapped out by Research and Education Director Otto Pragan, included a series of "educational weekends" in large cities during the winter and a series of one-week training schools in the warm season. Among the sites for the summer schools: Santa Catalina Island, Calif.; Lake Junaluska, N.C.; and the union's own vacation resort, Club Whitesands, on Lake Catchacoma in Canada.

Gas-Coke has offered two labor institutes this summer with the cooperation of Cornell University, Ithaca, N.Y., and St. Louis University, East St. Louis, Ill. In charge of Gas-Coke's training program is Vice-President Joseph R. Joy, who doubles as director of research and education.

Although he and his associates helped plan and conduct the institute at Ithaca, Extension Director Ralph N. Campbell, of the New York State School of Industrial and Labor Relations—located on the Cornell campus—argues that the school is neutral and nonpartisan. It also stages similar institutes for management people.

**Courses Vary:** There's no standard curriculum for these schools. Subjects in ICWU sessions this year included job evaluation, wage incentives, and procedures for negotiating fringe benefits. A more advanced course



will be given in ICWU's "postgraduate" school next month.

Classes at Gas-Coke institutes: handling grievances, arbitration, wage determination and collective bargaining, fringe benefits, health and welfare benefits, and the American labor movement.

What does such an institute accomplish? Here's the answer in the words of Cecil Martin, Gas-Coke secretary-treasurer: "After attending an institute last year, a certain union man who formerly had been quiet and meek in bargaining sessions suddenly became a vociferous negotiator whose deftly framed questions kept the company men on the defensive.

"That one example alone," Martin told the delegates, "was enough to convince me that it's worthwhile for your locals to send you to these institutes."

## Write-Offs Roundup

This week CW compiles another summary of fast tax write-off certificates in the chemical industry, covers the period Oct. 30, '52 through August 1, '53. (Other reviews appeared in CW, Nov. 22, '52; March 8 and 15, '52; Aug. 4, '51.)

Applications for new listings now average between 75 and 90 weekly—a considerable slack-off from peak periods in '51 and '52 when something around 200 was the norm. The Office of Defense Mobilization is currently approving about 60% of its applications.

Most favorably received overtures still are coming from those branches of the industry furthest from government-stimulated expansion goals. Among the commodities involved: chemical-grade chromite, synthetic cryolite, quinoline, rubber and rubber products, selenium. Production quotas in all categories are still less than 50% from their expansion goals.

ODM, however, makes exceptions in special cases. The high-percentage write-off issued recently for gamma globulin reflects, for example, desire of the government to back the National Foundation for Infantile Paralysis' country-wide fight against polio.

Action to extend the accelerated tax amortization program for defense or defense-supporting facilities was recently extended to June 30, '55 by Congress, may be augmented by Sen. Capehart's bill to extend write-off privileges to nondefense producers for the procurement of capital equipment. (CW, July 18).

Meanwhile, though dying down in numbers, chemical companies in no-

## ACYCLIC ORGANICS

Company, Location	Product	Amount Certified	% Certified
Belle Alkali Co., Inc., Belle, W. Va.	Methylene chloride	419,000	60
Belle Alkali Co., Inc., Belle, W. Va.	Methylene chloride	51,000	70
Celanese Corp. of America, Dumas, Tex.	Acetic Acid, Acetone, Methanol	14,000,000	45
Celanese Corp. of America, Belvidere, N.J.	Formaldehyde	1,200,000	55
The Dow Chemical Co., Freeport, Tex.	Ethylene Dibromide	8,455,000	80
The Dow Chemical Co., Freeport, Tex.	Glycerin	5,485,000	60
Esso Standard Oil Co., Bayway, N.J.	Methyl ethyl ketone	2,994,722	40
General Electric Co., Waterford, N.Y.	Methyl Chloride	10,410,000	60
Loven Chem. Co. of Calif., Newhall, Calif.	Formaldehyde	900,000	55
Refined Syrup & Sugars, Inc., Yonkers, N.Y.	Dextran	483,250	70
Gustavo T. Reich, Falling Creek, Va.	Glycerine	219,810	60
Shell Chemical Corp., Houston, Tex.	Acetone	297,000	50
Shell Chemical Corp., Norco, La.	Isopropyl alcohol for acetone production	6,530,000	50
Shell Chemical Corp., Norco, La.	Isopropyl alcohol for acetone production	370,000	15
Shell Chemical Corp., Dominguez, Calif.	Methyl Isobutyl Ketone	400,000	50
Shell Chemical Corp., Houston, Tex.	Synthetic Glycerine	9,000,000	60
Stauffer Chemical Co., Louisville, Ky.	Methylene Chloride	2,118,600	60
Stauffer Chemical Co., San Luis, Calif.	Citric Acid	2,869,298	45

## CARBON BLACK

Company, Location	Product	Amount Certified	% Certified
Phillips Chemical Co., Borger, Tex.	Carbon Black	2,039,000	50
Atlas Powder Co., Marshall, Tex.	Activated Carbon	3,600,000	45

## COKE, COAL TAR

Company, Location	Product	Amount Certified	% Certified
National Steel Corp., Weirton, W. Va.	Coke and Chemical Byproducts	24,750,000	60

## CYCLIC ORGANICS

Company, Location	Product	Amount Certified	% Certified
Allied Chemical & Dye Corp., Chicago, Ill.	Naphthalene, Tar Acids	529,000	60
Allied Chemical & Dye Corp., Ironton, O.	Naphthalene	311,500	60
American Cyanamid Co., Avondale, La.	Monomethylstyrene	7,840,000	60
American Cyanamid Co., Bound Brook, N.J.	Naphthalene	857,000	60
The Dow Chemical Co., Midland, Mich.	Bisphenol-A	153,400	75
Koppers Co., Inc., Follensbee, W. Va.	Chemicals from Coke	470,000	40
Loven Chemical of Calif., Newhall, Calif.	Oven Tars	3,670,000	50
Thomas N. Peck & Associates, Eastern, Ky.	Phenol	475,000	50
	Furfural	475,000	50

## FERTILIZERS, AMMONIA, PHOSPHORUS

Company, Location	Product	Amount Certified	% Certified
Allied Chemical & Dye Corp., La Platte, Nebr.	Phosphatic Fertilizers	26,797,000	40
American Cyanamid Co., New York, N.Y.	Phosphate Rock	872,880	50
Gates Brothers Inc., Montpelier, Idaho	Phosphatic Fertilizers	2,146,156	45
International Minerals & Chemical Corp., Tuscola, Ill.	Nitro Phosphate Fertilizers	10,500,000	55
Lange Brothers, Inc., Audrain Co., Mo.	Nitrophosphate	7,725,000	50
Mathieson Chemical Corp., Pasadena, Tex.	Phosphatic Fertilizers	1,200,000	45
Mathieson Chemical Corp., Jefferson County, Mo.	Phosphatic Fertilizers	21,000,000	45
F. S. Royster Guano Co., Bartow, Fla.	Phosphatic Fertilizers	3,031,102	45
E. Rauh & Sons Fertilizer Co., Tuscola, Ill.	Nitrophosphate Fertilizers	1,928,500	75
E. Rauh & Sons Fertilizer Co., Tuscola, Ill.	Fertilizers	916,000	45
Savannah, Ga.	Phosphatic Fertilizers	695,000	45
I. P. Thomas & Son Co., Paulsboro, N.J.	Phosphatic Fertilizers	785,000	45
U.S. Phosphoric Products, East Tampa, Fla.	Ground Phosphate Rock	1,124,590	45

## METALS

Company, Location	Product	Amount Certified	% Certified
Banner Mining Co., Pima County, Ariz.	Copper, Molybdenum	441,165	75
The Beryllium Corp., Reading, Pa.	Beryllium alloys	5,099,494	60
Black Rock Mining Corp., Hiko, Nev.	Tungsten	1,395,000	70
Black Rock Mining Corp., Bishop, Calif.	Tungsten	750,000	40
Black Rock Mining Corp., Bishop, Calif.	Tungsten	2,027,834	70
Blockson Chemical Co., Joliet, Ill.	Tungsten recovery	600,000	75
Climax Uranium Co., Grand Junction, Colo.	Uranium Ores	22,123	80
Climax Uranium Co., Grand Junction, Colo.	Uranium Concentrates	283,253	80
Cramet Inc., Nashville, Tenn.	Titanium	25,740,500	90
Garnet King Mining Co., Esmeralda Co., Nev.	Tungsten	125,761	70
International Nickel Co., Inc., Huntington, W. Va.	Nickel, Nickel Alloys	230,000	50
International Nickel Co., Inc., Huntington, W. Va.	Nickel alloy products	128,000	50
The International Nickel Co., Inc., Huntington, W. Va.	Nickel Alloys	857,000	50
The International Nickel Co., Inc., Huntington, W. Va.	Nickel Alloys	136,700	50
The International Nickel Co., Inc., Huntington, W. Va.	Nickel, nickel alloys	346,500	50
Minerals Engineering Co., Salt Lake City, Utah	Tungsten	197,381	70
Molybdenum Corp. of America, Empire, Colo.	Molybdenum	2,497,834	75
National Metallurgical Corp., Springfield, Ore.	Aluminum-Titanium-Silicon Alloy	438,000	85
Olin Industries, Inc., East Alton, Ill.	Primary Aluminum	123,300,000*	85
* To be reduced at a later date upon determination of certain costs of facilities.			
Pioche Manganese Co., Henderson, Nev.	Manganese	650,040	75
Round Valley Tungsten Co., Bishop, Calif.	Tungsten	18,483	70
San Manuel Copper Corp., Mammoth, Ariz.	Copper and Molybdenum concentrates	9,484,000	50
San Manuel Copper Corp., Mammoth, Ariz.	Copper and Molybdenum concentrates	54,154,500	75
San Manuel Copper Corp., Mammoth, Ariz.	Copper and Molybdenum concentrates	7,590,000	40

# Steps

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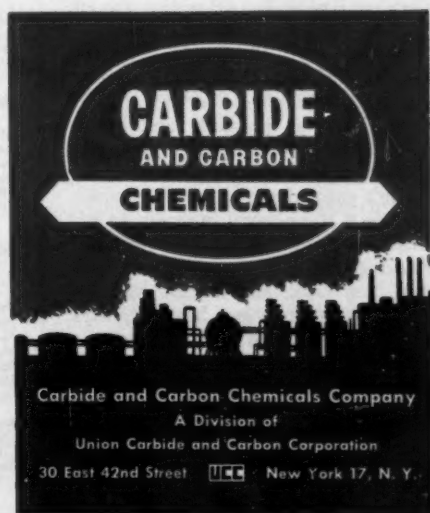
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For more information on Diethanolamine, or any of Carbide's nitrogen compounds, write for the free booklet F-4770-B.



## B & I . . . . .

table instances are still taking some of the biggest write-offs. Recent whoppers: American Enka's \$35 million for nylon, at 40%; American Cyanamid's \$7.8 million for monomethylstyrene at 60%; Dow's \$5.4 million for glycerine at 60%.

## LABOR . . . . .

**Big Plants Covered:** Latest chemical labor contracts apply to some of the largest works in the industry. Among the batch:

- Liquid Carbonic's Chicago plant is back into production this week following settlement of a four-day strike by about 1,100 employees, members of the United Auto Workers (CIO). Union official Frank Krebel says the new contract calls for an improved pension plan, a 5¢/hour annual wage increase, and allayment of a dispute on job inequities.

- Diamond Alkali and District 50, United Mine Workers, have signed a two-year pact covering 2,700 production employees at Painesville, Ohio. Terms are a 5¢/hour wage increase, freezing 10¢ of the present cost-of-living allowance into basic wage rates, and continuation of the present cost-of-living escalator clause. An "annual improvement factor" wage rise of an additional 5¢/hour will go into effect July 22 next year.

- Atlas Powder and two locals of UMW District 50 have reached agreement after a strike of more than a month at the plants in Reynolds and White Haven, Pa. Wages will go up 4½¢/hour over levels created by the 2½¢ increase last January; shift bonus pay goes up to 6¢ and 12¢/hour; there'll be seven paid holidays instead of the previous six; and there's a new seniority clause. When abilities are equal, the job will go to the man with more seniority; otherwise, the job goes to the best qualified employee.

- Monsanto's Plastics Division and the International Union of Electrical, Radio & Machine Workers (CIO) worked out a "mutually and highly satisfactory" contract just before a strike deadline. Terms ratified by the union's approximately 1,400 members include a 10¢ general increase, an additional boost for skilled workers, freezing the 18¢ cost-of-living pay into base rates, and higher shift differentials. Negotiations began 60 days before expiration of the old three-year contract, and continued to within a few hours of the termination time.

**Employee Cutback:** Hiring of new production and maintenance workers in chemical plants proceeded at a higher rate in May than in April, ac-

## METALS (Cont'd.)

Southeastern Chemical Co., Inc., Lamont, Ill.	Nitrophosphate Fertilizer	1,591,700	65
L. & W. Tungsten Co., Tonopah, Nev.	Tungsten	24,390	70
Union Carbide & Carbon Corp., Kokomo, Ind.	Metal Alloys	458,075*	63
* May be reduced by Internal Revenue at a later date upon determination of certain facilities.			
Wheland Co., Chattanooga, Tenn.	Alumina	22,160,000	85
The Wheland Co., Chattanooga, Tenn.	Primary aluminum	35,450,000	85

## PHARMACEUTICALS, ANTIBIOTICS

Commercial Solvents Corp., Terre Haute, Ind.	Bacitracin (Antibiotic)	26,450	55
Cortland Laboratories, Los Angeles, Calif.	Gamma Globulin	21,572	75
Cutter Laboratories, E. Chattanooga, Tenn.	Solutions for Intravenous Injections	98,000	45
Don Baxter, Inc., Glendale, Calif.	Serums and Plasma	93,446	60
Merck & Co., Inc., Albany, Ga.	Sulfonamide	858,290	45

## PLASTICS, RESINS, POLYMERS, PLASTICIZERS

Esso Standard Oil Co., Baton Rouge, La.	Petroleum Resin	2,800,000	45
Koppers Co., Inc., Potter Township, Pa.	Styrene Resins for Plastic Materials	1,664,482	45
Shawinigan Resins Corp., Springfield, Mass.	Vinyl Resins	93,175	45
Union Carbide & Carbon Corp., Bound Brook, N.J.	Epoxy resins	360,000	50
Union Carbide & Carbon Corp., Marietta, O.	Polystyrene Resin Compounds	6,322,000	45

## OTHER ORGANICS

American Enka Corp., Lowland, Tenn.	Nylon Fiber	35,000,000	40
Panogen, Inc., Boulder County, Colo.	Fungicides	67,220	45
Union Carbide & Carbon Corp., Niagara Falls, N.Y.	Herbicide (2, 4, -D)	1,288,400	45

## OXYGEN, HYDROGEN, OTHER GASES

Air Products, Inc., Emmaus, Pa.	Oxygen	28,000	60
The Burdette Oxygen Co. of Cleveland, Inc., Huntington Park, Calif.	Oxygen	72,500	45
The Burdette Oxygen Co. of Cleveland, Inc., Huntington Park, Calif.	Oxygen	176,700	60
Corpus Christi Oxygen Co., Corpus Christi, Tex.	Oxygen	356,000	35
Dye Oxygen Co., Inc., Phoenix, Ariz.	Oxygen, Acetylene	47,300	45
Hofman Laboratories, Inc., Newark, N.J.	Nitrogen	37,056	60
Liquid Carbonic Corp., Chicago, Ill.	Oxygen, Acetylene	222,750	45
Monsanto Chemical Co., Texas City, Tex.	Nitrogen	16,800,000	45
National Cylinder Gas Co., Tampa, Fla.	Oxygen (high purity)	231,510	50
Sierra Oxygen Co., Reno, Nev.	Oxygen, Acetylene	102,457	60
Steele Gases Inc., Forest Park, Ill.	Oxygen	41,400	60
Welding Gas Products Co., Nashville, Tenn.	Oxygen	66,000	45
Welding Gas Products Co., Nashville, Tenn.	Oxygen	40,197	60

## SULFUR, SULFURIC ACID

Allied Chemical & Dye Corp., Painesville, O.	Sulfuric Acid	3,300,000	45
Anaconda Copper Mining Co., Anaconda, Mont.	Sulfuric Acid	1,428,800	70
Columbian Carbon Co., Seminole, Tex.	Sulfur from Waste Gas	200,000	70
Consolidated Chemical Industries, Inc., Houston, Tex.	Sulfuric Acid	333,200	45
Davison Chemical Corp., Nashville, Tenn.	Sulfuric Acid	950,000	45
Freepoint Sulphur Co., Freepoint, Tex.	Sulfur	2,730,000	70
Gates Brothers Inc., Wendell, Idaho	Sulfuric Acid	790,000	45
International Minerals & Chemical Corp., Mason City, Iowa	Sulfuric Acid	412,500	45
International Minerals & Chemical Corp., Wilmington, N.C.	Sulfuric Acid	500,000	45
Mathieson Chemical Corp., Pasadena, Tex.	Sulfuric Acid	380,000	45
F. S. Royster Guano Co., Jackson, Miss.	Sulfuric Acid	458,000	45
Signal Oil & Gas Co., Tioga, N. Dak.	Sulfur	345,127	70
Stauffer Chemical Co., Compton, Calif.	Sulfuric Acid	510,000	70
Stauffer Chemical Co., Whiting, Ind.	Sulfuric Acid	1,930,000	70
Wilshire Oil Co., Inc., Norwalk, Calif.	Sulfur from Waste Gas	148,000	70

## MISCELLANEOUS

Aluminum Co. of America, Alcoa, Tenn.	Cryolite	2,500,000	75
Aluminum Ore Co., East St. Louis, Ill.	Synthetic Cryolite	170,000	85
Diamond Alkali Co., Painesville, O.	Chemicals	639,625	40
Diamond Alkali Co., Painesville, O.	Chemical Products	875,000	25
Filtrol Corp., Salt Lake City, Utah	Special Catalysts	85,800	65
Firth Sterling Inc., Trafford, Pa.	Research and Development of titanium carbide	125,748	65
Food Machinery & Chemical Corp., Carteret, N.J.	Potassium Phosphates	119,350	45
R. M. Hollingshead Corp., Camden, N.J.	Special Chemicals for Military End Use	337,950	45
Johns-Manville Prod. Corp., Lampoc, Calif.	Calcined Diatomite	287,159	35
Johns-Manville Prod. Corp., Lampoc, Calif.	Calcined Diatomite	1,976,443	35
Magnet Cove Barium Corp., New Orleans, La.	Barium Sulfate	423,500	30
Metal Hydrides Inc., Beverly, Mass.	Metallurgical Hydrides	993,677	75
Michigan Chemical Corp., St. Louis, Mich.	Calcium Magnesium Chemicals Intermediates	242,000	25
Monsanto Chemical Co., St. Louis, Mo.	Phosphorus	1,290,000	40
Monsanto Chemical Co., Monsanto, Ill.	Oxychloride	945,000	70
New Jersey Zinc Co. of Pa., Palmerton, Pa.	Titanium Dioxide	15,000,000	45
Simpson Coal & Chemical Corp., Caruthersville, Mo.	Phosphoric Acid	1,915,900	45
Union Carbide & Carbon Corp., South Charleston, W. Va.	Chemical Products	2,951,300	25



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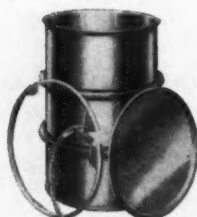
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# NILES

METAL BARRELS AND DRUMS



B & I . . . . .

According to the Bureau of Labor Statistics; but separation of chemical employees also accelerated. The "accession" rate moved up from 1.9 to 2.1 new employees per 100 workers, while the separation of chemical employees rose from 1.9 in April to 2.2 in May.

FOREIGN . . . . .

**Synthetic Detergents/Netherlands:** Use of nonsoap detergents in the Netherlands has jumped up from 2% of the market in 1948 to 24% in 1952, says A. J. de Jong, director, Lever Soap Co., Vlaardingen. Opinions differ on whether the trend will continue; but in Holland, at least, the rise of synthetic detergents has stimulated soap research.

**Terramycin/Hungary:** Four years ago Hungary produced no penicillin, streptomycin, other modern drugs. Today, reports seeping through the Iron Curtain point to large-scale penicillin, terramycin production in the first half of 1953, hint that a big streptomycin plant is coming on-stream soon. Reports state specifically that the Chinoim Medicaments Factory has undertaken to manufacture considerably more than its 5-Year-Plan quota; the workers of the Ultraseptyl works section, working an "election peace" shift in May, made up for their April lag.

**Sulfuric Acid/Hungary:** The Budapest Sulphuric Acid Factory has exceeded its production goal for the first half of 1953, but has borne the brunt of heated criticism in the local press for negligent handling of materials. The charge: that the plant has delivered zinc cyanide in paper sacks that are falsely labeled "crystal sugar" . . .

**Sodium Sulfate/Mexico:** A new \$750,000 sodium sulfate plant has opened up in the northern Mexican state of Coahuila, will turn out 1,200 tons of the salt a month for use in domestic glass, paper and cellulose industries.

**Joint Enterprise/Spain:** The Union Chimique Belge has formed a company in Spain, the Union Commercial Belgo-España, in conjunction with a Spanish firm. Its purpose: to set up coking plants and chemical plants throughout Spain. Its capital: 3 million pesetas.

**Polystyrene / Australia:** Monsanto Chemicals (Australia) Ltd. expects to start production of polystyrene in Australia in October. Plant facilities are now under construction, but styrene monomer will continue to be imported

# CHEMICALS OUTLOOK

August 1953



This news bulletin about Wyandotte Chemicals products and their applications is published to help keep you posted. Perhaps you will want to route these and subsequent facts to other interested members of your organization. Additional product information, through Wyandotte research and technical service facilities, and trial quantities of Wyandotte products are always available upon request. May we serve you?

## NEW RESEARCH FACILITIES GIVE PROMISE OF FURTHER ADVANCES IN PAINT PIGMENTS AND EXTENDERS

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Now the facilities of the paint laboratory in Wyandotte's new research center are dedicated to further improvements in paint raw materials, pigments and extenders. The new facilities augment our skilled technical personnel and 15 years' background in evaluating experimental and commercial paints. If you have a pigment-extender problem, consult Wyandotte.

## HALANE FOR BETTER LAUNDRY BLEACH FORMULATIONS

New Wyandotte Halane (1, 3-dichloro-5, 5-dimethylhydantoin) is creating an unusual amount of interest among home-laundry bleach makers. This chlorine-liberating compound in convenient powder form permits formulation of a powdered home-laundry bleach.

Halane has exceptional stability -- loss of available chlorine from dry Halane is very slow. In addition, it greatly reduces the possibilities of deterioration in clothes by bleaches. In fact, Halane is so safe that it may come in direct contact with cottons, for example, without apparent damage to the material.

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## TOLUENE DERIVATIVES

4-Chloro-2-aminotoluene Tech.

Dinitrotoluene Tech.

2,6-Dichlorobenzal chloride  
Tech.

p-Toluidine Tech.

## NAPHTHALENE DERIVATIVES

alpha-Naphthylamine Tech.

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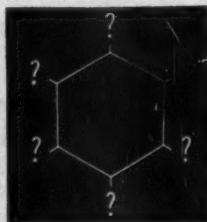
Sodium naphthionate Tech.

beta-Naphthylamine Tech.

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BETTER THINGS FOR BETTER LIVING...THROUGH CHEMISTRY

**ORGANIC**  
**CHEMICALS DEPARTMENT**

B & I . . . . .

from Germany, possibly from England. Monsanto has asked the Australian Tariff Board for protective duties on locally made polystyrene.

L E G A L . . . . .

**Tradename Tiffs:** Manufacturers are touchier about their tradenames these days. Litigation on this subject in the news this week ranges from insecticides to pharmaceuticals.

• Over vigorous opposition from Koppers Co., the U.S. Patent Office is upholding Dow Chemical's right to register "Hexadow" as a tradename on an insecticide. Koppers insisted that this was too similar to its tradenames, such as "Hex Cide" and "Hex-it", on insecticides, disinfectants, wood preservatives and other chemicals. The examiner-in-chief, L. P. McCann, ruled that it's not reasonable to expect the Dow and Koppers products to be confused.

• Abbott Laboratories is making progress in its drive to uphold its "Nembutal" brand name on pentobarbital capsules. Following its victory in the Park Pharmacy suit (*CW Newsletter*, May 9), Abbott has now won injunctions against two other drug stores in the Bronx, N.Y.

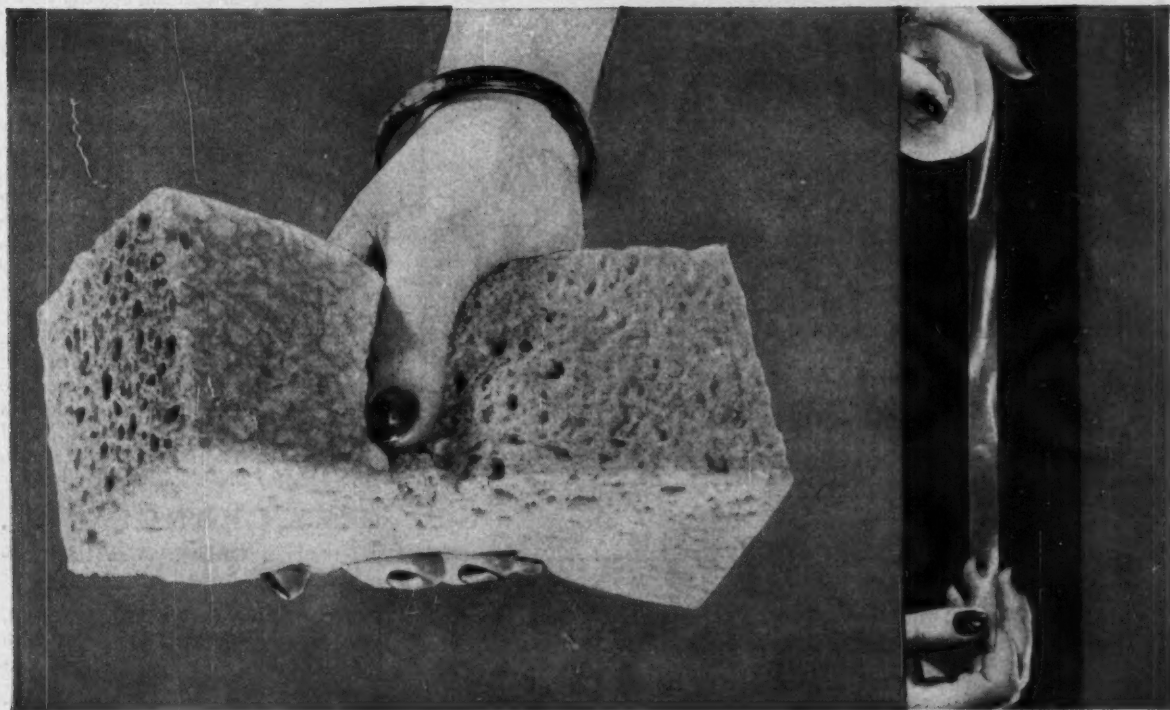
• **Atomic Damages:** If your company uses radioactive materials in plant or laboratory, you'll be interested in a case now pending in state district court at Santa Fe, N.M. Erroll J. Dubois, formerly a machinist at Los Alamos Scientific Laboratory, is suing for \$200,000, claiming total disability from working with uranium and other radioactive metals. Named as defendants are the regents of the University of California, the institution that operates the laboratory under contract with the Atomic Energy Commission. Dubois says the university failed to install safety devices. In its answer, the university alleges that Dubois' disability is due to his own negligence, adds that his suit should have been brought under provisions of the Workmen's Compensation Act.

• **Textile Do's & Don'ts:** What's doing in Washington on the subject of textile laws and regulations:

• Up to Aug. 17, interested parties may send to the Federal Trade Commission their written arguments on a proposed change in regulations under the Wool Products Labeling Act of 1939. This proposed change would require that whenever a wool product is composed in part of synthetic fibers, "the percentage content of the respective fibers may be disclosed on

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B & I . . . . .

the required label in aggregate form as 'synthetic fibers' followed by the naming of such fibers in the order of their predominance by weight." In other words, the label would show the total proportion of all synthetic fibers, but not the percentage of individual fibers.

• Next June 30, the "Flammable Fabrics Act" will go into effect, exactly 12 months after it was signed by President Eisenhower. It forbids the manufacture, transportation, importation or sale of wearing apparel that is flammable and dangerous to the person wearing it. It'll be enforced by FTC.

**FDA Seizures:** Two chemicals were culprits in two of the 94 shipments seized by the Food & Drug Administration in June. FDA nabbed a carload of wheat treated with a poisonous mercurial compound that was unusual in that it was practically colorless, whereas the mercury compound for making seed wheat pest-proof usually stains the kernels pink.

The second action involved a meat preservative containing thiourea to prevent discoloration. FDA said this compound, which was not declared on the label, could have caused thyroid disturbances and other injuries.

## KEY CHANGES . . .

**Jerome S. Garland**, to president, d-Con Co., Chicago.

**Herbert B. Lerner**, to president, Chemurgic Process Corp., College Point, N.Y.

**W. Adrian King, J. G. Woods**, to vice-presidents, hydrocarbon chemicals division, Mathieson Chemical, Baltimore.

**John E. Begert**, to vice-president, Johns-Manville Products, New York.

**K. K. Boyd**, to vice-president, Emery Industries, Cincinnati.

**John Wilson Drye, Jr.**, to director, Union Carbide and Carbon, New York.

**Lawrence D. Schmidt**, to director of research, Allied Chemical's Somet-Solvay Div.

**Malcolm M. Renfrew**, to director of chemical research and development, General Mills Research Laboratories, Minneapolis.

## DIED . . . . .

**Alphons Otto Jaeger**, retired chairman of development committee, American Cyanamid, New York.



# Here comes

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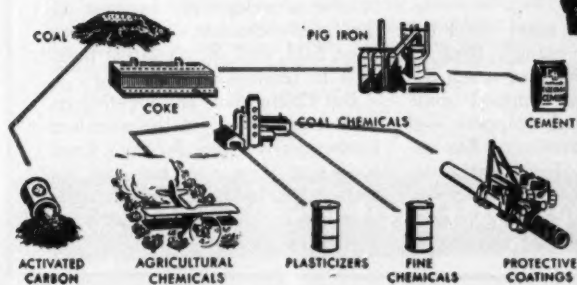
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## target

Ask a youngster where orange juice comes from, and odds are (unless he happens to be a Floridian or a Californian) he'll say, "Out of a can."

But despite the growing number of orange squeezers gathering dust in attics as frozen juice concentrate dominates the breakfast table, oranges are still being sold in skins as well as in cans. And California growers, in particular, whose oranges are known as "eating" oranges (in contrast with Florida's "juice" variety),\* are aiming to keep on selling as many as possible the old way.

To do it, however, they have to pare the cost of shipping to major markets, most of which are closer to Florida than to the West Coast. In these efforts to keep their fruit on Eastern tables, they are turning to chemical producers for help in solving their packaging problems.

One chemical — biphenyl — in about two years has revolutionized the method of shipping lemons, and it—or another compound—may be the fungistat that can do a similar job for oranges. The stakes will be bigger in the case of the latter: almost 28 million boxes of oranges were shipped in '51-'52, compared with about 8.5 million boxes of lemons.

**Intimacy of the Carton:** Reason for using a fungistat is that, in the new method, the fruit is volume-filled (dumped unwrapped) in cartons with smooth interiors instead of being hand-wrapped and hand-placed in wooden boxes. With fruit individually wrapped, decay that starts by bruising in packing or shipping can't spread by contact. But the pestilence in volume-filled fruit travels skin-to-skin; hence decay is a serious problem, and there must be a practical solution.

The best control found thus far for lemons is biphenyl. It is applied to a fiberboard collar placed around the inside of the container, or to fiberboard pads placed at the top and bottom. After the fruit is packed, the fungistat sublimes into the atmosphere of the carton, checking the most serious ailments affecting lemons in shipment.

Major advantage of cartons over

\* Ratio of fruit going to market fresh and that processed as juice is 3:1 in California, 1:2 in Florida.

## Fungistat for Oranges

the old boxes is the savings in volume filling—in cost of wraps and labor of hand-wrapping and hand-packing. There are other substantial savings in cost of container, freight (lighter weight of carton), and dealer handling.

These cartons are half the size of the wooden boxes, and, especially in the case of lemons, there is a demand for the smaller unit (although some feel there may be resistance to half-box units of oranges). Retailers, who like to display fruit unwrapped, are happy



**LEMONS IN CARTONS:** Another bonanza in California.

to receive it that way—how happy is shown by an estimate that 80% of all California lemons are now packed in cartons.

**Matter of Taste:** From the success growers have had with lemons, it would seem a simple matter to do the same with oranges. The catch is that oranges are more susceptible than lemons to taste influence from the biphenyl, and their good "orangy" smell also suffers from it.

Just how much more effect the chemical has on oranges than on lemons is the subject of much debate. Florida has shipped some oranges in biphenyl wrappers, and one California distributor has recently used it, feels optimistic about its future. But other big growers are trying shipping in ventilated cartons without any fungi-

stat while waiting for the ideal product to come along.

And these are the properties the material should have: effectiveness in decay control; volatility but relative inertness; safeness from toxicity standpoint; freedom from taste and odor; and noninterference with physical processes of the still-living fruit.

**Widespread Search:** The citrus industry, U.S. Dept. of Agriculture, kraft board makers and chemical producers are all working on means of combating biphenyl's odor and are looking for substitutes. Biphenyl now supplied has masking agents in it; and manufacturers of cartons for lemons add lemon oil, too. The hope is that it can be masked sufficiently for general use with oranges.

The University of Florida Citrus Station (Lake Alfred, Fla.) has examined two-three thousand compounds without finding a usable substitute. And a new program is about to start at the Riverside (Calif.) Citrus Experiment Station. It will concentrate initially on hormones such as 2,4-D and 2,4,5-T.

One of the most promising substitutes is  $\alpha$ -terpineol. It has a drawback common to many fungicides or fungistats: it is absorbed by nearby fruit, often causing fruit burn on outside pieces, and leaving the middle of the box unprotected. Object of current investigation is to tone it down so it works equally throughout the container.

Judging the size of the market (if biphenyl were used), you get these rough figures: if all lemons shipped last year went in cartons, 270,000 lbs. of biphenyl would have been used; all oranges, another 880,000 lbs. Cost of the fungistat (if used as biphenyl now is) is a minor item.

Admittedly, cartons of oranges don't have as much appeal to the retailer as lemons. And Florida packers have shown little interest in the development because of their pre-eminence in the frozen juice field, and their relative nearness to markets.

But Californians are counting on such a system to get the premium Easterners will pay for their fresh fruit that they may not pay for their juice. In it there's a healthy premium for the company with the ideal fungistat.

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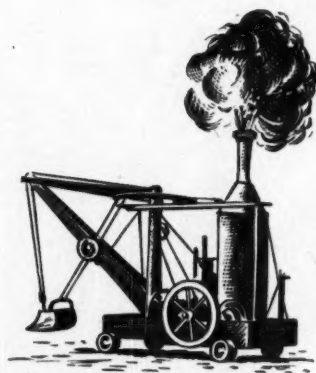
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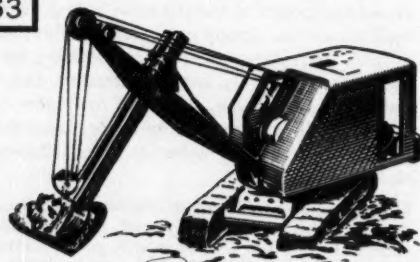
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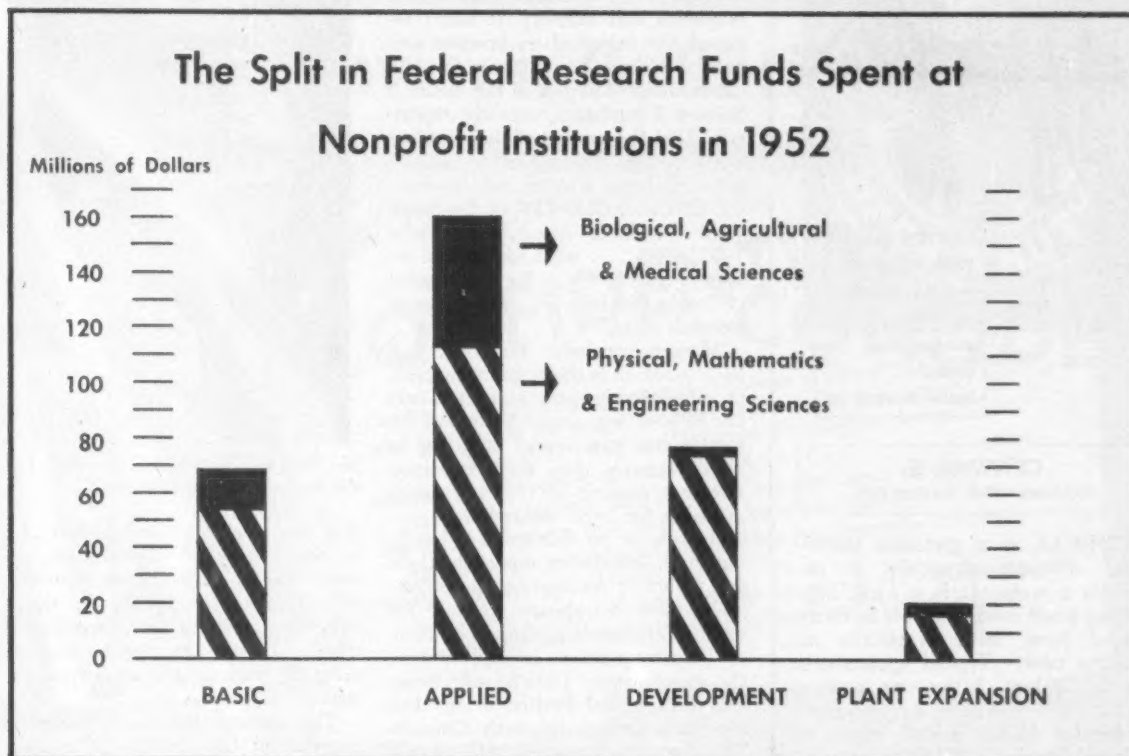
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Source: National Science Foundation

## Needed: A New Balance

No one has yet found a way to avoid paying the piper. And until this truism is disproved, educators and academic research leaders have due cause for concern.

The promissory note on government support of research at educational institutions is coming due. That its price may be higher than anyone expected is the indelible implication of just-released figures on federal funds expended for scientific research at nonprofit institutions during the past two years.

Gathered by National Science Foundation, the data underscore a distressing situation—and potentially disastrous long-term national problem: fundamental research at colleges and universities is losing out to short-range applied studies; the traditional role of educational institutions as sources of basic scientific knowledge is being seriously undercut.

In 1951, the federal government spent \$271.5 millions on research and development in nonprofit institutions (88% of which are educational); in

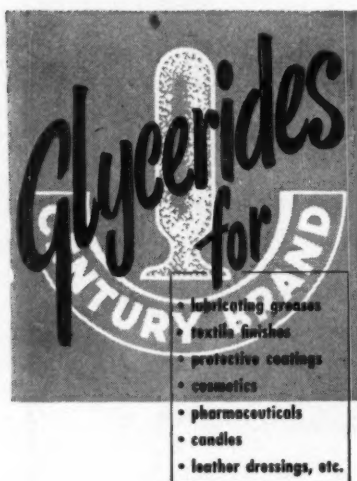
1952, the total was \$317.9 millions. The split between basic and applied support was one-sided to a marked degree in 1951, the former receiving only 28% of the total. But 1952 saw

no improvement; on the contrary, funds for basic studies slipped to about 22% of the total. Just how lopsided the basic-applied ratio was for research in the physical, engineering and biological sciences may be seen in the bar graph (above).

Existence of the dangerous inequity



NSF'S WATERMAN AND MORGEN: With facts, a start toward policy.



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## RESEARCH . . . . .

has alarmed responsible scientists in education and industry. It hasn't escaped the notice of government scientists, either. To engineering educators, Ralph Morgen, of the National Science Foundation, recently reported: "That the support of these various types [basic, applied] of research is out of balance is quite evident from the data . . . Only 21% of the funds went for basic research [in fiscal 1952], 50% . . . went for applied research, and 29% . . . for the support of developmental work and increase of research plant."

Morgen concludes that ". . . if basic research is the primary function of educational institutions and only one-fifth of the research support by the federal government is going to basic research, then there is an insufficient amount of [federal] funds available for basic research."

Agreement on this score is hardly universal. In industry, especially, there is a mounting feeling that the federal government is already paying for too much research. An important body of industry opinion is expressed in the recent words of Mathieson Chemical Corp.'s Carl Prutton to the Engineering College Research Council: "With greatly increased research activities by our federal government, and the urgent need of research in our engineering schools, there is the possibility of direct or indirect control by politicians of our entire advanced educational system . . . Any client who pays half of one's budget must be at least listened to with respect."

Prutton's solution: more industry-financed academic research. His thesis: "The widespread support of [fundamental] research programs by many industries would greatly eliminate the chances of directive control by any group."

On the other side of the coin, numerous educators would like to leave support of basic research alone, slice the load of applied work. In a preliminary report, the American Council on Education's committee on institutional research policy, headed by State University of Iowa President Virgil Hancher, formulated the ground rules for this approach.

By way of pointing up the growing danger, Hancher's educators make no secret of their belief that there is "a serious imbalance" between government funds for applied studies and development and those earmarked for basic research. Their warning: "The committee is fearful that, since the war, we have not maintained the proper emphasis on basic research . . .



MATHIESON'S PRUTTON: For half the budget, a respectful ear.

that this may be reflecting itself . . . in the quality of scholars we are turning out . . . in the accumulation of fundamental knowledge on which future applications and development are based; hence we may be jeopardizing the progress and security of the nation."

The answer: less nonfundamental research at the colleges. The committee is not opposed to applied investigations *per se*—only wants to reduce, not eliminate, them. Military research, in particular, would be sliced to the bone at colleges and universities. Reasons the committee: "Classified research . . . is justified in a college or university only as a public service in emergency conditions . . . should continue only so long and so far as the emergency conditions exist."

Six Ways: To counter the threat,



IOWA'S HANCHER: For pedagogues, a six-point code of action.



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**RESEARCH . . . . .**

the committee has formulated a six-point code of action for educational institutions: (1) no educational institution should seek or accept classified military research unless it is especially qualified for such work; (2) government research, if accepted, should be closely related to the normal program and objectives of the institution; (3) except for unusual or emergency reasons, no contract should be accepted that imposes restrictions on publication of research results; (4) to reduce the danger of external control, a university should maintain a proper balance between government work and its normal program; (5) to minimize the danger to their economies, colleges and universities should accept contracts that do not cover both direct and indirect costs only with the full recognition that they are making a contribution to the cost of the work; (6) no institution should permit itself to become so dependent upon sponsored research that the cancellation of this support would seriously damage it.

But the burden of reform does not rest entirely on the shoulders of the pedagogue. The ACE committee recommends that "government think in terms of removing these . . . [classified projects] from these [educational] institutions at the earliest practical time . . . arranging for them to be carried on by government, private, or industrial laboratories."

Other government-beamed tips: avoid centralization of work in a handful of schools; contract for research on the basis of full costs (including overhead); set up more research centers (e.g., Argonne National Laboratory, Johns Hopkins Applied Physics Laboratory) to handle further large-scale defense research projects; put greater emphasis on fundamental research.

Industry, too, gets a few pointers. The committee believes that most of its six-point program applies equally well to industry-sponsored work. It strongly cautions: "Research primarily aimed at the production of 'hardware'—i.e., short-term payoff—should be avoided."

Implied in sound approaches to the federal research-support problem is the need for clear-cut government policy in this sensitive field. So far, a coordinated policy has been sadly lacking. By conventional procedures, each federal agency contracts for research—fundamental and applied—with little or no idea of how such activity fits into the government-sponsored research picture.

Some light, however, is coming into

this gloomy scene. National Science Foundation is acutely aware that federal funds are having their effect on the educational research structure. In the words of one NSF spokesman: "Almost everyone who has considered the subject agrees that the growth of federally sponsored research at non-profit institutions may be producing significant changes in the character of these institutions."

"There is less agreement as to the nature of these changes; what, precisely, they are; what effect they are having; whether, for the long run, present policies are sound. To date there has been too little factual information from which to draw meaningful conclusions . . ."

**After Facts:** To get the vital information, NSF is gathering and tabulating a wealth of statistical material. First result of that effort: a 48-page report, tagged "Federal Funds for Scientific Research and Development at Nonprofit Institutions, 1950-51 and 1951-52." NSF director Alan Waterman calls the report primarily a fact-finding study, indicates that his agency will continue to investigate.

In the meantime, constructive measures are being taken to bring order into the government-sponsored research setup. In line with administration and Congressional thinking, all fundamental research responsibility is being centralized in NSF. Defense Dept., for example, even now is transferring its basic studies to NSF. By its fellowship program and administrative policies, NSF is encouraging research that, in nature and execution, is in line with educational objectives.

It's only a start toward an integrated, well-conceived policy. But on the success of government's efforts to forge a sound research policy hangs an incalculable stake in the nation's future. The mold of today's fundamental research will, in large measure, determine the shape of tomorrow's advances in industry, medicine and defense.

**Standards Shake-up**

Directly related to the chemical battery additive controversy (CW Apr. 25), a new shake-up has hit the National Bureau of Standards.

Work at the bureau (now under Commerce Dept. management) will be divided between Commerce and Defense. Four divisions concerned with military research and development will be transferred to Defense Dept. control within the next two months. Personnel (1,600 scientists and technicians) and equipment involved, however, will remain at pres-

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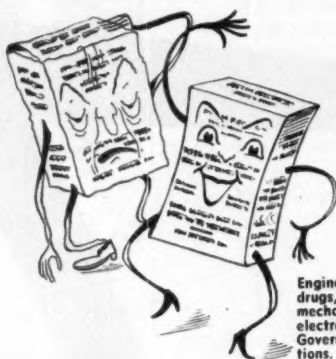
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## RESEARCH . . . . .

ent NBS laboratory sites in Washington (D.C.) and Corona (Calif.) until the Defense Dept. finds room for them. Missile development at Corona will likely go under Navy supervision.

With some additional simplification and tightening up, the remaining 13 NBS divisions will continue to serve industry; the divisional setup itself will remain unchanged. What the transfer does mean is that growth of the bureau has been checked at least temporarily.

In line with Secretary of Commerce Weeks' aim of having Commerce bureaus serve business only, the transfer was agreed upon by Weeks and Secretary of Defense Wilson after recommendation by a special committee appointed by Weeks and headed by Bell Telephone Laboratories director Mervin Kelly.

Although Weeks has been strongly opposed to expenditure of more than half of the \$50-million annual NBS budget in the past few years for nonbusiness studies, Washingtonians feel that his move probably would have been less drastic had not the battery additive controversy arisen. Causing ill will among scientists and business men alike, the battery scuffle, say insiders, has been embarrassing to Weeks.

**Breaking and Building:** Battelle Memorial Institute (Columbus, O.) recently broke ground for its seventh major building, a \$1.4-million laboratory. Scheduled for fall of '54 completion, the four-story lab will add 100,000 sq. ft. of space to the private research center.

• United States Steel Corp. (Chicago) has just set up a specialized research laboratory in Pittsburgh to test new steels, surfaces for enameling, and finished products for the degree of abuse they can endure.

**Phenol Focus:** The latest coal hydrogenation product to hit Carbide and Carbon Co.'s (New York) sales list, Meta-Phenols 220 is now available in tank-car quantities. Pegged as a potential intermediate for all types of phenolic resins, it is a mixture of reactive cresols, xylenols and ethyl phenols with a b.p. range from 207 C to 230 C. Total phenolic material is about 98% of the mixture by weight, with a high proportion of meta substitution. Other commercial possibilities, says Carbide are use of Meta-Phenols 220 in synthesis involving ring substitution on a phenol, in the manufacture of phenolic dyestuffs, organic and inorganic esters and non-ionic surface-active agents.

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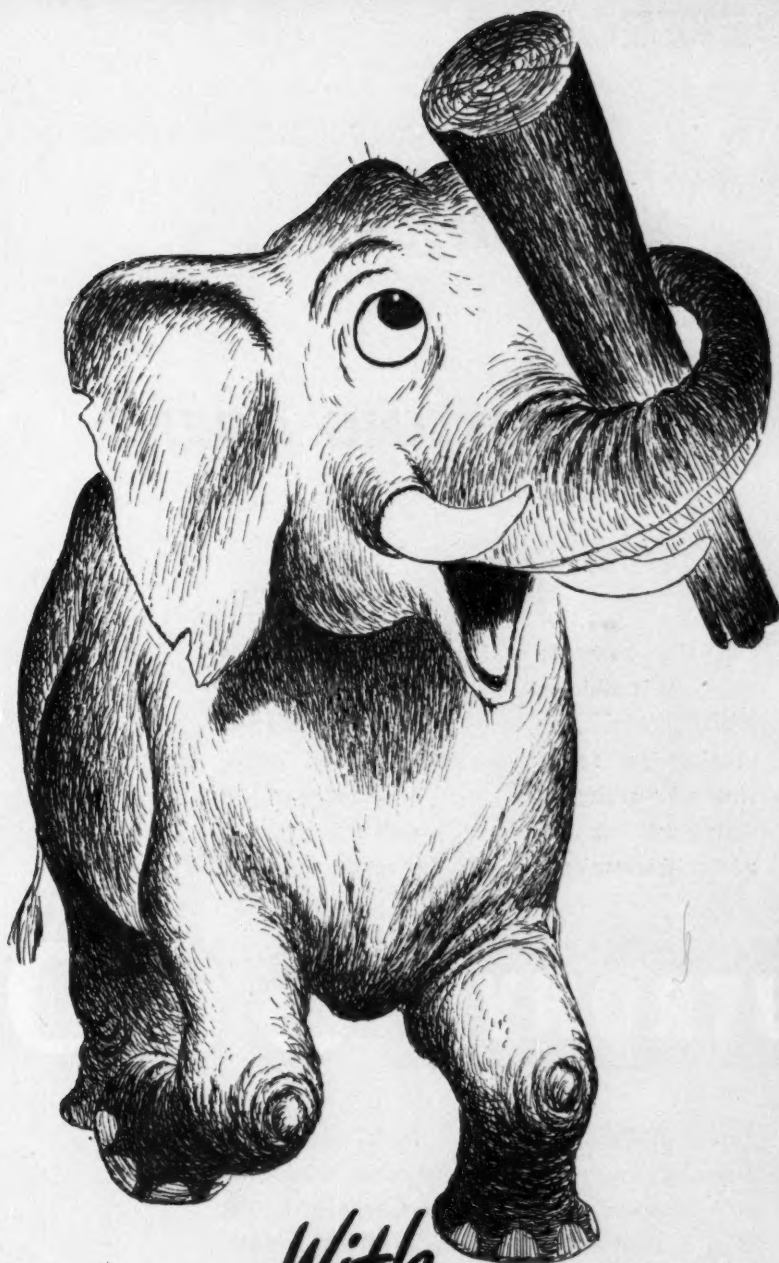
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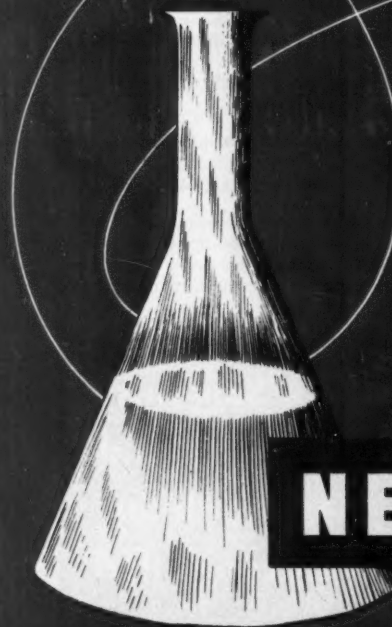
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# SPECIALTIES . . .

## Vital Thousandth

In less than a decade of rapid growth, plastic lacquer for plastics has piled up \$2.5 million annual sales.

Major factor broadening the use of molded plastic: more than decoration, the coatings improve durability of the plastics.

There's a thin margin between a product's catching on and failing—and in the case of molded plastic products, it's been the  $\frac{1}{1000}$ -inch coating of synthetic lacquers that's made the difference.

The coatings have given the plas-

tics an appeal and durability that has qualified them for a raft of new uses, have brought them out of the limited field of industrial and electrical applications, permitted them to elbow into brand new areas.

Plastics often start with the advan-



**FREEZER PART:** Lacquered plastic (left) adds sub-zero glamor (right).



**STUDEBAKER MODELS:** A \$2.5-million coatings market is no plaything.

tage of low cost, but it takes the coatings to give them resistance to moisture, abrasion, grease and the like. And a prime point: they've permitted decorative effects unmatched by any other products. An example is Logo, Inc.'s AV-46 series of coatings for cellulose acetate, introduced just last week.

The result has been a new field where plastic lacquer sales have reached an estimated \$2.5 million/year, and all suppliers are convinced the business is just catching hold. According to *Modern Plastics* magazine, of the perhaps 2 billion lbs. of plastics, about one-quarter are molded forms, which are targets for coating.

**Four for the Money:** Four firms are vying for the coatings dollar (not including companies supplying special metallizing finishes). Likely top dogs in the field are Bee Chemical Co. (Chicago), a firm that has specialized in making the lacquers, and Standard Toch Chemical Co. (Staten Island, N.Y.), with Schwartz Chemical Co. (New York) and New England Lacquer Co. (E. Providence, R. I.) fighting for a share of the business, too. Bee, incidentally, desiring to expand in other lines, formed a subsidiary—Logo, Inc.—last fall, which is devoted exclusively to the lacquers.

Careful formulation—generally, almost custom work for each user—has been behind the wide acceptance of the coatings. No longer are small parts, like horn buttons, name plaques, emblems, the major part of the business outside of toy manufacture, the trend today is toward pieces like refrigerator doors, TV cabinets, advertising signs, auto dashboards and the like. A tempting future application is on plastic auto bodies.

Lacquer makers have worked out coatings for all the plastics; polystyrene is currently the most widely used plastic for molded parts, and hence lacquers for it are major products. Logo, for one, estimates that 70% of its production goes to polystyrene parts.

**Mix Masters:** Formulation of the lacquers is generally kept a pretty closely guarded secret. But depending on the plastic involved, nearly all resin systems have been used—alkyd, ureas, phenolics, vinyls, cellulose, epoxies, etc. For polystyrene, ethyl cellulose has been commonly used. A proper solvent—alcohol, ketones, esters and hydrocarbons—aid in giving good adhesion. For desired effect, aluminum powders, pearl essence and thousands of pigments are available.

Coatings can be applied either to the top or reverse side of the molded piece. Clear plastics are widely used,

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## SPECIALTIES . . . . .

and a number of colors can be applied, using masks to give an appearance of depth and three dimension. Numbers, letters and designs are applied with silk screens, although in most cases they are sprayed on to speed the operation. With thermoplastic materials, air-drying lacquers are preferred—though ovens at 140-160 F are common.

Typical of the problems lacquer makers come up against were those encountered in coating polystyrene display signs. Coatings with heat resistance, color fastness, good brilliance and reflectivity were needed—metallic finishes of bronze and aluminum were desired. Existing finishes were dull; it wasn't until the lacquer makers were able to get the particles to lie down or "leaf" that near-plating brilliance was achieved.

Originally worked out for the back sides of plastics, these finishes have since been adapted to the top surfaces, now can be used not only on polystyrene but on cellulose acetate butyrate as well.

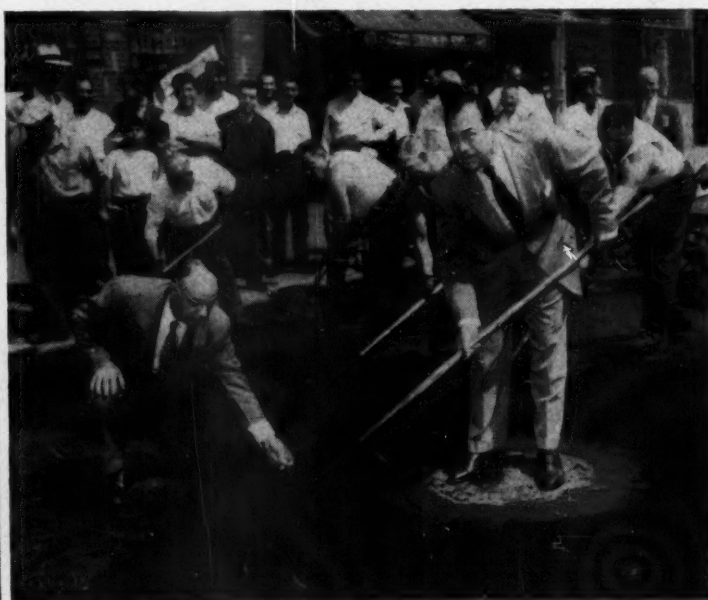
**Acetate Touch:** Polystyrene hasn't

a corner on coating problems, however. Acetates are tough, but plasticizer migration—the plasticizer moving toward the surfaces of the plastics—can soften many coatings. To make a harder coating often results in a rigid, crack-susceptible coating; and in toy applications, where flexibility is needed, a cracking coat won't do. One solution has been to develop a sealing primer coat. Now finishes more resistant to abrasion than the acetate itself are available.

Acrylics, popular for automobile emblems and outdoor signs, require as many as 10 separate coatings. Early ones clogged masks, were slow-drying, didn't weather well. Now industry can choose among fast-drying lacquers that pass all durability tests.

Polyester laminates have proved a problem to coat. Heat-curing makes them insoluble in many organic solvents so that adhesion by controlled solvent action—common with thermoplastics—doesn't work out too well. But coatings that don't adhere by the "solvent bite" have been produced.

**Catching Up:** Toys have long been



## First Avenue Bounce

STREET PAVINGS incorporating rubber have been tried out sporadically in various parts of the world (CIW Newsletter, Mar. 24, '51), but this week Manhattan's first such section, on First Ave. between 24th and 25th Sts., is getting its baptism by traffic. At its laying down Borough President

(and candidate for mayor) Robert F. Wagner made busy with a rake while his office's chief engineer, Anthony Donargo, tested the mix's temperature.

In many tests admixture of rubber has increased the wear and weather resistance of asphalt topping.

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Reduced prices recently were announced for Rohm & Haas ethyl acrylate and methyl acrylate. This followed a sharp reduction some months ago in the price of methyl methacrylate. In the light of these lower prices you will find it will pay to take another look at the acrylates and methacrylates as a means of improving *your* products.

Widening fields of usefulness for acrylic monomers already embrace many products. These include synthetic fibers; transparent cast plastic sheets; molding powders; chewing gum; heat-resistant synthetic rubber; oil additives; industrial fume-resistant finishes and other protective coatings; a diversity of emulsion applications such as emulsion paints, shoe and textile finishes, rug backings, and paper coatings; and chemical intermediates.

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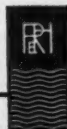
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2-ethylhexyl acrylate	Butyl methacrylate	methacrylate
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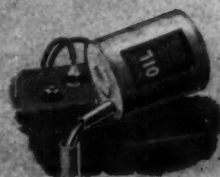


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A small quantity of 240 wax (melting point 240°F.) increases the melting point of the wax coating and imparts a harder, glossier surface which displays the desired moisture vapor transmission properties.

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## SPECIALTIES . . . . .

the major consumer of coated plastics. In the past few years, however, industrial applications are approaching playthings as users of the lacquers.

And one automobile manufacturer has combined the "toy" and industry aspects. Studebaker dealers in many areas get models of the company auto line—models coated with lacquers that match precisely the color schemes the firm offers in its full-size cars.

Makers of plastic coatings are certain to continue to push applications of plastics by supplying coatings that broaden their usefulness. As Logo's Vice-President Lloyd Parks puts it, "We'll try anything."

## Borderline Market

Recent tests by Chrysler Motors show that about a third of hydraulic fluid brands can't meet Society of Automotive Engineers' standards, might even fail under ordinarily encountered conditions. But it's still an improvement over five years ago, when over half of them flunked.

Chrysler points out that the inferior brands—which the firm will not name, but which were on the market in the Detroit area—don't fraudulently claim to meet any standards; they're just hazardous to use. And though sales figures on all types of fluids are not available, Chrysler suggests that ratios of the volume of substandard fluids to those of quality is also roughly one to three. The firm says there is no unusually large demand for any particular brand or brands.

Main point of the SAE standards concerns effectiveness over a wide temperature range. Heavy-duty fluids must have a boiling point above 300 F, moderate-duty fluids above 230 F. In a modern automobile, with its shielded brake drums, high-speed braking can generate a great deal of heat—if the fluid boils, there's a column of vapor instead of liquid, and there are no brakes.

**Read the Label:** Major offenders are fluids with a high percentage of isopropyl alcohol—50-80% will likely result in a substandard fluid. But until motorists look for SAE-approved labels, the dangerous fluids will be sold. The fluids are generally a little cheaper than higher-quality products, but variations are the rule.

Chrysler is not painting the picture entirely black, however. It points to its tests in 1948, when 15 of 29 brands examined weren't up to snuff. Apparently greater interest is being taken in the matter. Indicative of this is a new Minnesota law that went into effect last month; it requires

that hydraulic fluids sold there have the approval of the commissioner of highways.

And it may well be that until more laws similar to Minnesota's are passed, the hazardous fluids will be sold. *Automotive News*, which has called attention to Chrysler's findings, quotes one maker of the low-quality fluids as being in favor of the restrictive legislation, but until such regulation is common "... our company . . . will continue to sell low-cost fluid to answer the needs of those [retailers] who feel that they are unable to sell fluid of any other kind."

• **Dryer:** Cargill, Inc. (Minneapolis) is introducing a new series of drying oils for paints. Based on linseed and soybean oil, they are highly polymerized products furnished at 70% solids in mineral spirits.

• **While It's Wet:** Industrial Chemical Products Co. (Philadelphia) is now selling a silicone-base water repellent for masonry called Cel-R. Dri.

• **For Pros:** The Glidden Co. (Cleveland) has gone into production of a new latex base paint for new construction, tags it Professional Ultra Flat Latex Paint. It is claimed to dry in half an hour. A new vehicle is said to provide superior covering power.

• **Dry Detergent:** For use in dry cleaning charge systems, Pennsylvania Salt Mfg. Co. (Philadelphia) has come up with a new detergent, Power-Pak. It is specifically designed for use in strong soap or supercharged dry cleaning systems using either petroleum or synthetic solvents.

• **Heat Resistance:** A heat stabilizer for vinyl compounds has been worked out by Advance Solvents and Chemical Corp. (New York). The stabilizer, an organotin compound containing a thio linkage, is claimed to impart high heat resistance. A high-boiling yellow liquid, it can be used in amounts varying from 0.75% to 1.5%, depending on the severity of the heat cycles the vinyls must withstand. Stabilizer 17M, as it's called, is said to be compatible with most copolymers.

• **Fluorides in Batteries:** After a series of tests, the Gould-National Batteries labs have concluded that fluorine-treated water is harmless to industrial storage batteries. Undistilled city water is frequently used in such cells, and Gould tests have shown that provided the water is not harmful in itself, fluoridation won't cause damage.

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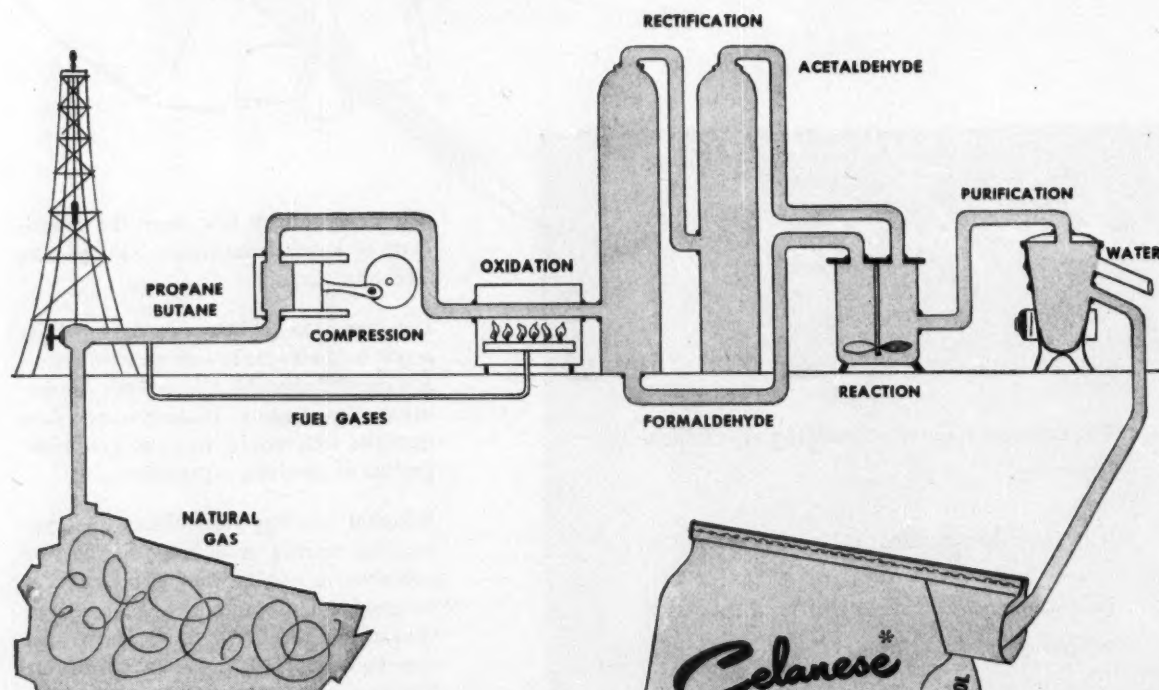
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# PRODUCTION . . .

## Keenly Wooed, Hardly Won

Titanium's rich dowry attracts a host of chemical suitors, but current extraction processes present a difficult gantlet.

The winner will likely be one that discovers a shortcut in the form of a continuous process to produce titanium sponge at a \$1/lb. price.

Even the most skeptical are convinced by now that titanium has a big future carved out for itself. Only thing that is keeping it from fulfilling its role is the price (\$5/lb. for sponge, up to \$30/lb. for fabricated shapes). If that could be slashed to a point (\$1/lb. or less) where it would compete with stainless steel, it could command a market that's pegged at 500,000-2,000,000 T/year.

Slashing the price, moreover, is a technological problem that the chemical industry seems ideally suited to solve.

And though many a process engineer has stubbed his toe on the job, a spate of chemical companies are funneling millions of dollars into programs aimed at uncovering cheaper ways of winning titanium from its ores.

Currently there are only two commercial producers in this country, Du Pont and Titanium Metals (jointly owned by National Lead and Allegheny Ludlum). But they will soon be followed by others. Union Car-

bide's Electro Metallurgical Co., for one, is champing at the bit to start titanium production on a big scale. Although officially mum on the whole subject, it has applied for government assistance to build a plant to make the metal at a whopping 10,000 T/yr. rate.

Federal assistance would be in the form of the standard aid given by the Defense Materials Procurement Agency: cash advance to build the plant and equipment, rapid amortization, an option to repay the loan in metal rather than in dollars, and cancelation of indebtedness in case the Kroll equipment (if the Kroll process is employed) becomes obsolete during the life of the contract.

Titanium Metals, which—like Du Pont—is shooting for 10 T/day production in present facilities, is already raising its sights. It has put in a bid for a government contract on additional facilities that would swell its output by 15 T/day. Like Electro-met, it is not disposed to discuss plans or proposals.

Another company that's ready to leap into full-scale production is Crane Co., the Chicago valve manufacturer. It started pilot-planting titanium processes over two years ago (CW, June 16, '51), is now seeking a \$26-million loan from the government to build a 6,000 T/year plant.

**Awaiting a Thaw:** But unfortunately for these ambitious plans, the government has put a freeze on all titanium contracts pending a revision by the Office of Defense Mobilization of the expansion program. Originally, the government's idea was that production should be 4,000 T in 1953, 22,000 T in 1955. It's now unlikely, however, that these goals will be met. Production this year figures to hit 2,500 T; next year, 5,500 T.

And even if the government decides on a bigger expansion program and signs a rash of new contracts, there is no assurance that it will bring about a titanium business on a sound commercial basis. For chances are that anyone starting production now would string along with the Kroll process. And though both Titanium Metals and Du Pont express the belief that large-scale production with the Kroll process would pare the price, there is a strong feeling among industry that the Kroll may not prove to be the eventual process of choice.

Present production, of course, is intended as a defense measure. But when defense needs taper off, the market for \$5/lb. titanium sponge will be extremely limited. What's needed is a continuous process to turn out high-grade titanium cheaply.

And at least at the present state of know-how, the Kroll is a long way from being continuous. It's essentially a magnesium reduction of titanium tetrachloride. Both Du Pont and Titanium Metals use modified versions of it. They form the tetrachloride directly from the ore (rutile or ilmenite can be employed).

**Process Pursuit:** The ideal solution, of course, would be an electrolytic process. It's no secret that all of the companies involved have, at one time or another, actively researched electrolytic methods. National Lead went so far as to pilot-plant an electrolytic process at its plant in Sayreville (N. J.), although the exact status of the pilot plant right now is a well-kept company secret.

Horizons Titanium (jointly held by Horizons, Inc. and Ferro Corp.) also has an electrolytic process in the pilot stage. It was developed by Eugene Wainer, Horizons' director of research, while working on a Navy contract. Like the other companies involved, Horizons is not talking about its process. Shortly after it was developed,

### Scorecard on Titanium

Only two companies are in commercial production of titanium sponge\*:

- Du Pont\* which is making about 2½ T/day, shooting for 10 T/day in present facilities. A pioneer in titanium, Du Pont has disclosed no further expansion plans but it probably has them under consideration.

- Titanium Metals which is turning out about 3 T/day, also shooting for 10. It has applied for a contract on another 15 T/day expansion.

But two others are eager to get into production:

- Union Carbide's Electro Metallurgical Co., which is dickering with the government for assistance on a 10,000 T/year plant.

- Crane Co., after over two years of pilot-planting, is now seeking a government okay on a \$26 million, 6,000 T/year plant.

And at least two others are in the pilot plant stage:

- Horizons Titanium.
- Dow Chemical.

Meanwhile other firms are busy investigating processes:

- Monsanto and National Research have a joint research project under way.
- Clidden and Bohn Aluminum and Brass also have a cooperative research program.

\* Although Foote Mineral turns out a high-purity titanium by the decomposition of the tetraiodide on a hot filament, and Metal Hydrides produces a powdered metal. Also, Osaka Titanium Co. (Japan) is shipping some titanium sponge into this country.

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## PRODUCTION . . . . .

however, the Navy declared that the process was capable of turning out titanium for \$1/lb. Later it developed that Wainer actually figured the costs at less than 30¢/lb.; but many experts figure that Wainer's costs, based on laboratory work, were highly optimistic.

Edwin Goodridge, president of Horizons, says it is too early to talk about costs on titanium at all. He does say that Wainer and his associates have come up with "more than one method for the electrolytic winning of titanium from its ores." He adds that the same equipment can be used to turn out zirconium and eight other metals, that the zirconium process is now "complete and economical."

One of the difficulties encountered with electrolytic processes for either titanium or closely related zirconium is that they turn out a powdered, highly pyrophoric form of the metal. Apparently Horizons has overcome this, at least as far as zirconium is concerned, for its zirconium samples are in the form of non-pyrophoric granules, about 80% of which would be caught on a 50-mesh screen.

Goodridge admits only that the titanium processes start with rutile. But it's a safe bet that the actual electrolysis starts with a double fluoride of titanium. And though final judgment on the merits of the process must wait on full reports of the pilot plant, Union Carbide thought enough of it to obtain a license on it (CW, Aug. 9, '52).

**Looking Around:** Electrolytic processes don't have a corner on the interest of process development engineers of course, and there are numerous other paths currently under investigation. One likely alternative to the Kroll process is a reduction of the titanium intermediate with a metal other than magnesium. It's very likely, for example, that Monsanto and National Research are investigating reductions that employ either calcium or sodium.

Sodium reduction, in fact, has long been considered a potential method for making titanium commercially. National Distillers, seeking to broaden the market for its sodium, has done some preliminary exploratory work on a bench scale. And Kennecott Copper (which with New Jersey Zinc owns Quebec Iron and Titanium with its titanium-rich slag from Lac Tio) has patented processes (U.S.P. 2,618,549; 2,618,550) dealing with the reduction of titanium tetrachloride with sodium amalgam, presumably from a mercury chlorine cell.

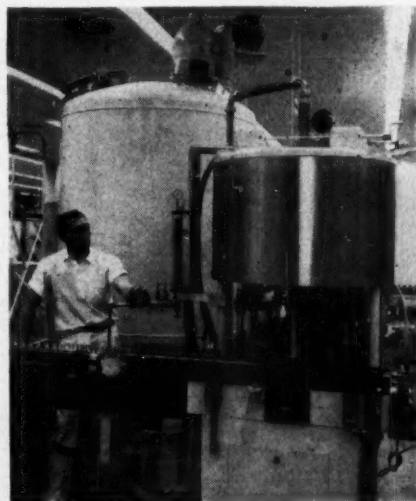
Despite these efforts, however, the

task of wooing titanium metals from its ores has dimmed the ardor of many of her swains. And though the companies concerned are picking up the tab on an expensive courtship, they don't mind: the successful suitor will get the lion's share of a billion-dollar dowry.

## EQUIPMENT . . . . .

**Circuit Rider:** With its new multiplexing transmitting and receiving system, declares The Bristol Co. (Waterbury, Conn.), 15 different readings (temperature, pressure, motion, current, etc.) can be taken at separate spots, transmitted any distance to Bristol's Metameter Telemeters over a single circuit. Selling point: savings in the cost of circuits.

**Revolution Counter:** Montgomery & Co.'s (New York) new, portable rpm. checker, with outside limits of 40 rpm. (minimum) and 50,000 rpm.



## Machinery on

With the shout "Roll 'em!", production men bustle into action and machinery starts moving in Kalamazoo. The machinery is wheeled production equipment at Upjohn Co.'s new pharmaceutical plant; the men are moving it from one assignment to the next.

In a fast-moving, free-wheeling operations, Upjohn has taken out all the stops, left out all the bolts and replaced them with wheels. The firm figures it can thus cut cleanup and switchover down time, get the flexibility needed by a growing pharma-

## PRODUCTION . . . . .

(maximum), gives direct readings off revolving shafts. Price: \$75.

**November Frost:** Refrigeration and air conditioning men expect to play host to many chemical and plastics people at the formers' big exposition slated for Nov. 9-12 in Cleveland's Public Auditorium.

**Georgia Plum:** Manufacturer of stainless steel tubing, Damascus Tube Co. (Greenville, Pa.) has just appointed Stanley B. Knapp Co. (Atlanta, Ga.) as its southern representative.

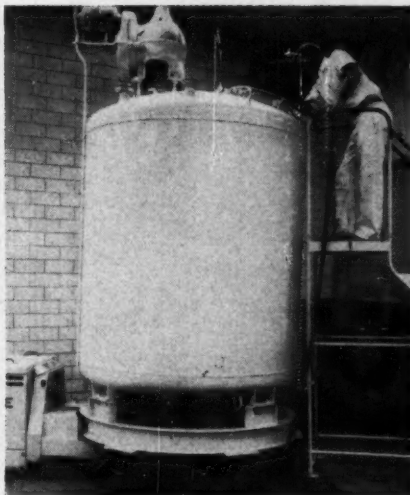
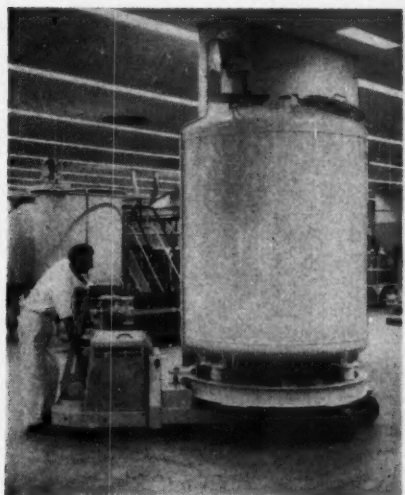
**Boost for Boone:** Selected by International Resistance Co. (Philadelphia), Boone (N.C.) will be the site of IRC's new \$400,000 plant. The building's 40,000 sq. ft. of work space are expected to be in full service by next Jan. 1.

**Mechanical Leech:** Republic Manufacturing Co. (Cleveland) has offered

a varied line of micrometer adjustment needle valves for those concerned with bleeding air from hydraulic systems. So called because of a .025-in. rise per revolution, valves are available for service to 3,000 psi. at temperatures from -65 F to 180 F.

**Pocket Editions:** A pocket-size personal dosimeter, Model 541/A, is among the latest offering of Victoreen Instrument Co. (Cleveland). A protective device for laboratory personnel, the dosimeter indicates absorbed radiation directly from the position of a quartz fiber against a translucent scale indexed from 0 to 200 milliroentgens.

• For those interested in surface and sub-surface temperature readings, Cybertronic Corp. of America (Chester, Pa.) has just begun manufacturing model 240-T pocket pyrometer. Claimed to give quick and accurate measurements through use of interchangeable thermocouples, the instrument has a



## Wheels—Fast, Flexible

ceutical company making and distributing over 700 different products.

Once an operation is completed (left), machinery is moved—generally, with an assist from a fork lift (center)—out of one production line into another, or into the wash deck area (right) where it is quickly hosed clean and returned to action.

But transferable tanks and portable pots are only part of Upjohn's overall design for streamlined production. Spread over 33 acres of floor space, the whole new plant was planned for flexibility—flexibility of processing,

flexibility for growth.

The plant layout itself facilitates a continuous flow operation. Raw materials are brought on a railroad spur track to one side of the building, processed as they move through the large central manufacturing area, stockpiled and shipped out on another spur track from a warehouse area on the far side.

Capable of producing all 700 current Upjohn products, the plant provides enough space and facilities to permit large-scale production of drugs still undiscovered.



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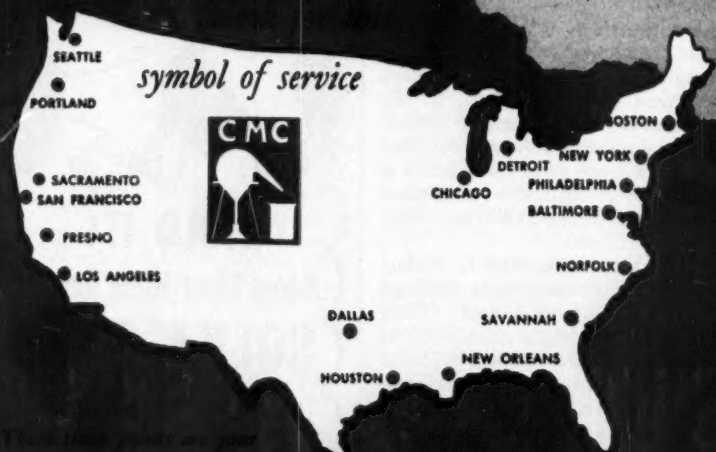
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## PRODUCTION . . . . .

2.4 inch direct reading indicator scale and is enclosed in a shock-absorbing rubber case.

**Plastics Parade:** Shockproof, non-brittle and chemically inert is the tag Enley Products, Inc. (New York) gives its new Poly Pup reactors. Made of polyethylene, the reactors, claims Enley, can be used for treatment of highly active liquids such as fluoboric and hydrofluoric acids and organic solvents.

• Kaykor Industries, Inc. (Yardville, N.J.) is now marketing rigid polyvinyl chloride plates, sheeting and other special forms. Hot-gas welding of the material, says Kaykor, makes possible fabrication of complex units such as fume exhaust systems.

• Few days ago, Chicago Molded Products Corp. (Chicago) put on a public demonstration of vacuum molding of its new styrene copolymer thermoplastic, Campeo S-300 rigid sheets. The sheets are now commercially available.

**Revised Estimate:** Industrial Mineral Fiber Institute, Inc. (New York) has just revised its four-page heat loss estimate sheet. Used in preparing analyses of thermal insulation for heated industrial equipment, the sheet is now supplemented by four reference graphs and tables, which aid in determining heat losses from flat surfaces and piping and in selecting optimum insulation thickness.

**Differential Feed:** The newly available Collins-Adey differential pressure feeder serves to continuously ferry bulk materials into and out of pressure and vacuum chambers, moves material by gravity or mechanical means from one pressure to another through an intermediate pressure lock. Balance ports equalize pressure between the several adjacent sections.

**Motorcade:** Reliance Electric & Engineering Co. (Cleveland) is sponsoring two traveling exhibits of its newest electric motors, motor-drives and associated controls. The mobile display unit primed for chemical plants is currently touring the Midwest.

**Metal Meld:** In order to avoid further confusion, Associated Iron & Metal Co. and Associated Smelting Co. are changing their names to Associated Metals Co. of California (Oakland). All along they have been two divisions of the same company, and the firms feel that the name merger will iron out operating procedures as well as dispel customer confusion.

***When a lovely lady takes your eye***



# U·S·S COAL CHEMICALS

***are in the picture***

Her gown is a misty creation of nylon, one of modern chemistry's most amazing achievements. Nylon is only one of many modern materials that trace their ancestry back to coal and the coke oven.

U·S·S Benzol plays an important role in the manufacture of nylon and the hundreds of products it yields. U·S·S Benzol is one of the family of U·S·S Coal Chemicals . . . a family that also includes Toluol, Xylol, Cresols, Phenol, Cresylic Acids, Pyridine, Picoline, Naphthalene, Creosote Oil and Ammonium Sulphate.

U·S·S Coal Chemicals are produced in nine plants from coast to coast. A tenth is under construction. For further information on all these products, write to United States Steel Corporation, 525 William Penn Place, Pittsburgh 30, Pa.

Nylon not evening dress  
by Call Chapman from Saks Fifth Avenue.

**U·S·S COAL CHEMICALS**



**UNITED STATES STEEL**

# New products and profits with Armour Chemicals

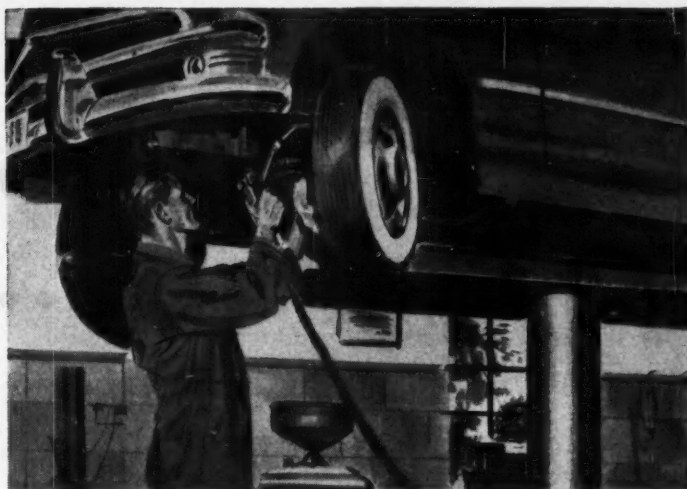
**Armids® make printing inks  
stay where they belong!**

Inks have exceptional anti-offset and non-scratch properties when they've been formulated with small amounts of Armid HT. This Armour chemical makes ink scuff-proof—it doesn't rub off on the other sheets in a stack! And when you're over-printing or wet-printing to coat a printed surface with lacquer or varnish, Armid HT improves adhesion. The same thing holds true for over-printing with a second ink. When conventional waxes are used, the coating will not adhere over the ink, resulting in a defective film.

Armid HT is one of a group of Armour chemicals—the Armids—which are being used in a wide variety of applications, particularly in surface coatings. They are mutual solvents for plastics and waxes, and they can be used as anti-block agents for many kinds of coatings, films and polymers. They are excellent raw materials for textile water repellents. In the rubber industry, Armid HT can replace Carnauba wax in adding sheen to molded products. Because of its much lower cost, the Armid means real savings. Armids can be used as thickening agents, dye solubilizers, "builders", foam stabilizers and boosters for detergents, and in many other fields. A free booklet on the Armids contains complete information, including chemical and physical properties of the various Armids. Send the coupon with your letterhead for your copy. Samples of Armid HT are also available free for your testing.







### Here's how to give him what he wants— consistently high quality grease!

To the average motorist, grease is something his car has to have—and that's about all he knows. To a mechanic or service station attendant, though, grease must have consistently high quality to stand up under the varying conditions it must meet. The grease manufacturer must balance his formula to provide this quality and at the same time get as high yield as he can with a minimum processing time.

Many manufacturers are achieving these ends, and increasing production at the same time, by using Neo-Fat® 65. A double distilled animal fatty acid, Neo-Fat 65 is of a composition which has been recognized for years as advantageous for grease formulations. It is produced by the most modern methods, closely controlled to meet the rigid specifications of our Research Laboratory. This assures you

of the uniform composition that is necessary for better quality and greater yield. Approximately 95 pounds of Neo-Fat 65 can be substituted for 100 pounds of neutral fat to obtain the same yield. And at least two batches of soap made with Neo-Fat 65 can be run in the time required for one using glycerides. For these reasons, manufacturers can expand production without purchasing new equipment or expanding their plants. In other words, without increasing labor, equipment or other overhead costs, you can get greater output of high quality grease. These savings more than offset the slightly higher raw material cost of Neo-Fat 65. You can prove these points in your own laboratory by sending the coupon with your letterhead for free samples of Neo-Fat 65.

### Stearic acid stability is the key to improving these products



Cosmetics, buffing compounds, candles, emulsifying soaps, finishing agents, metallic stearates—in any product using stearic acid, stability is vital. Armour's double pressed stearic, Neo-Fat® 18-54 is manufactured by a process which insures maximum stability—in fact, all heat stability tests show that Neo-Fat 18-54 retains its light color and is resistant to rancidity even during high temperature

processing. Peroxide tests confirm these findings. By any test, there is no finer double pressed stearic on the market.

A low ash content is of particular importance to candle manufacturers, since it insures wick action. Our crystallization method insures an extremely low ash content. Send the coupon with your letterhead for a free sample of Neo-Fat 18-54. Your own tests will show you its value.

**ARMOUR CHEMICAL DIVISION**

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### Color-heat stability in alkyds with new low-cost fatty acid

The stability to heat and light of fatty acids used in the formulation of non-yellowing alkyd resins often poses a problem for the manufacturer. Long periods of storage and/or high temperature processing frequently cause the acid to lose its original light color. Naturally this darkens the finished alkyd, causing off-color shades. A fatty acid material that will not break down under processing, during storage, or after application, and that will still be available for low-cost alkyd finishes, has long been needed.

In answer to this problem the Armour Protective Coating Laboratory has developed Neo-Fat 125—a low-cost raw material for white, non-yellowing air dry or baked resin coatings. Its outstanding color-heat stability makes this acid impervious to time in storage, high temperature processing and exposure after application. It minimizes the chances of yellowing in white or pastel shades due to kitchen fumes, greases, soaps, etc. These properties have been proved by extensive field and laboratory tests, which resulted in the conclusion that this is an outstanding raw material for producing quality alkyds economically. Tests in your laboratory will convince you, so send the coupon with your letterhead for free samples and a copy of Technical Bulletin A-8, which contains complete technical information and suggested alkyd formulations.

#### MAIL THIS COUPON WITH YOUR LETTERHEAD

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1355 West 31st Street, Chicago 9, Illinois

Please send me:

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- ☐ Neo-Fat 65 sample
- ☐ Neo-Fat 18-54 sample
- ☐ Neo-Fat 125 sample
- ☐ Tech. Bull. A-8

Name.....

Title.....

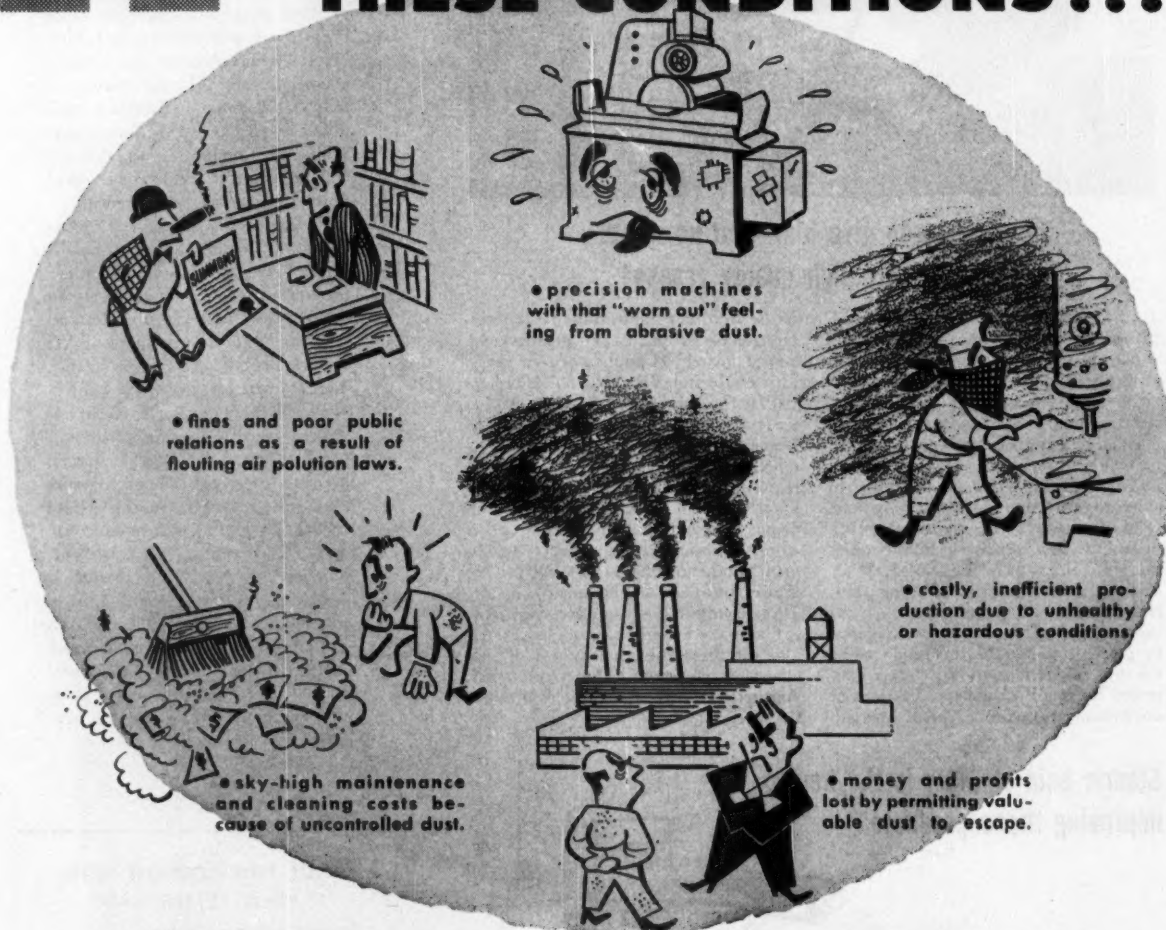
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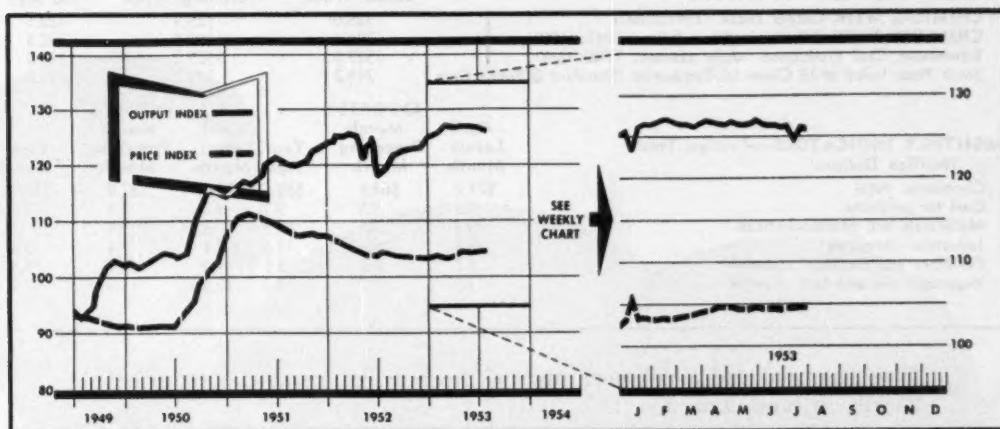
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# MARKETS . . . . .



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries  
 CW Price Index—Basis: Weekly Prices of Sixteen Selected Chemicals

## MARKET LETTER

Troubles besetting Chemstrand's Acrilan (see p. 67) continue to reverberate in the industry. One effect tipped here (CW Market Letter, July 25), is the shuttering of Phillips Petroleum's MVP installation.

Chemstrand's output slash also has co-owner Monsanto in a funk. The latter's acrylonitrile plant (Texas City)—just in after a "normal" three-week cleanup-repair shutdown—is now operating at about one-third capacity, somewhere around 15 million lbs./year.

Monsanto reportedly has a contract with Chemstrand pegging the acrylo tonnage that must be purchased; but the latter has six years in which to take the stated amount. The provision, plus a no-liability clause, gives Chemstrand some latitude in marketing Acrilan. Present cutbacks in the company's acrylo take may mean one of two end results:

- The deadline will have to be extended beyond the six-year mark, or
- Chemstrand will have to up its take during the later years of the present agreement.

Highlighting balloon-pricking in the synthetic fiber industry is this: Monsanto's acrylonitrile production, though limited, is now ample to cover eased demands from other synthetic fiber customers plus calls from the synthetic rubber industry.

As expected, Monsanto's acetylene (prime acrylonitrile ingredient) is feeling a chain-reaction shock from the Acrilan hubbub. The consumption slack, however, is being taken up somewhat by stepped-up vinyl chloride production.

Not affected—and unlikely to be later—are the Heyden-Monsanto plans for methanol from acetylene by-product gas. Construction of the reported 25 million gal./year plant adjacent to the latter's Texas City acetylene facilities will begin soon. Both companies will share the methanol pie in about 18 months or so.

No such harmonious interrelation is apparent between rival plasticizer producers. Hard on the heels of last week's 2¢/lb. cut of di-octyl and di-iso-octyl phthalate prices, comes word that dicapryl phthalate tags



# MARKET LETTER

## WEEKLY BUSINESS INDICATORS

	Latest Week	Preceding Week	Year Ago
CHEMICAL WEEK Output Index (1947=100)	126.0	125.9	120.5
CHEMICAL WEEK Wholesale Price Index (1947=100)	104.7	104.8	102.3
Bituminous Coal Production (daily average, 1,000 tons)	1527.0	1525.0	1115.0
Stock Price Index of 13 Chemical Companies (Standard & Poor's Corp.)	244.2	244.2	249.8

## MONTHLY INDICATORS—Foreign Trade (Million Dollars)

	April Latest Month	March Preceding Month	Year Ago	April Latest Month	March Preceding Month	Year Ago
Chemicals, total	\$71.7	\$68.5	\$69.5	\$27.6	\$32.9	\$19.0
Coal tar products	4.9	4.9	3.7	4.2	2.9	4.4
Medicinals and pharmaceuticals	20.2	1.81	18.3	.5	.4	.5
Industrial chemicals	9.5	9.1	11.6	6.4	7.4	3.6
Fertilizer and fertilizer materials	3.2	3.3	3.5	14.0	18.9	9.8
Vegetable oils and fats, inedible	1.7	1.7	4.3	10.5	11.0	7.9

have (as predicted here) been marked down a like amount. New prices: 33¢/lb. in tank cars; 35¢, l.c.l.

The action merely re-establishes the price spread but at a lower level. Next move is up to the DOP, DIOP makers. And chances are there'll be some heavy cogitating before the play is made.

Following petroleum—but not quite heel-treading—are upped prices of coke-oven toluol, xylol. The petro-derived products were boosted 2¢/gal. July 1; the coke materials 1½-2¢/gal., at some producing points, late last week. Though the postings were weeks apart, higher prices for both types dovetail on Aug. 1 as the effective date. Reason: most petro contract customers are “protected” for one month.

Behind the three-week announcement lag of the coke-oven chemical tag changes are two dissimilar, but economically loaded reasons:

- Steel producers hesitated to raise prices of their concomitant coke-oven derived products until after steel strike fears were allayed.
- They prudently waited, too, to see whether or not the petro increases would stick.

On the other hand there's some pressure-easing for benzol deliveries. Though producers are not finding it too difficult to move all their output, some are detecting a less urgent note in customers' calls.

It's true that demand from some big benzol outlets is off, particularly DDT, the chlorbenzenes, and synthetic phenol. But more than that, cutbacks in the nation's rubber stock-piling are expected to slim styrene needs—which in turn presages further shaving in benzol requirements.

Supply-demand has naught to do with the week-end slash of isonicotinic acid price. Major producer Reilly Tar & Chemical says the \$3/lb. reduction is due to stepped-up production of necessary raw materials from its new synthetic heterochemicals plant (Indianapolis).

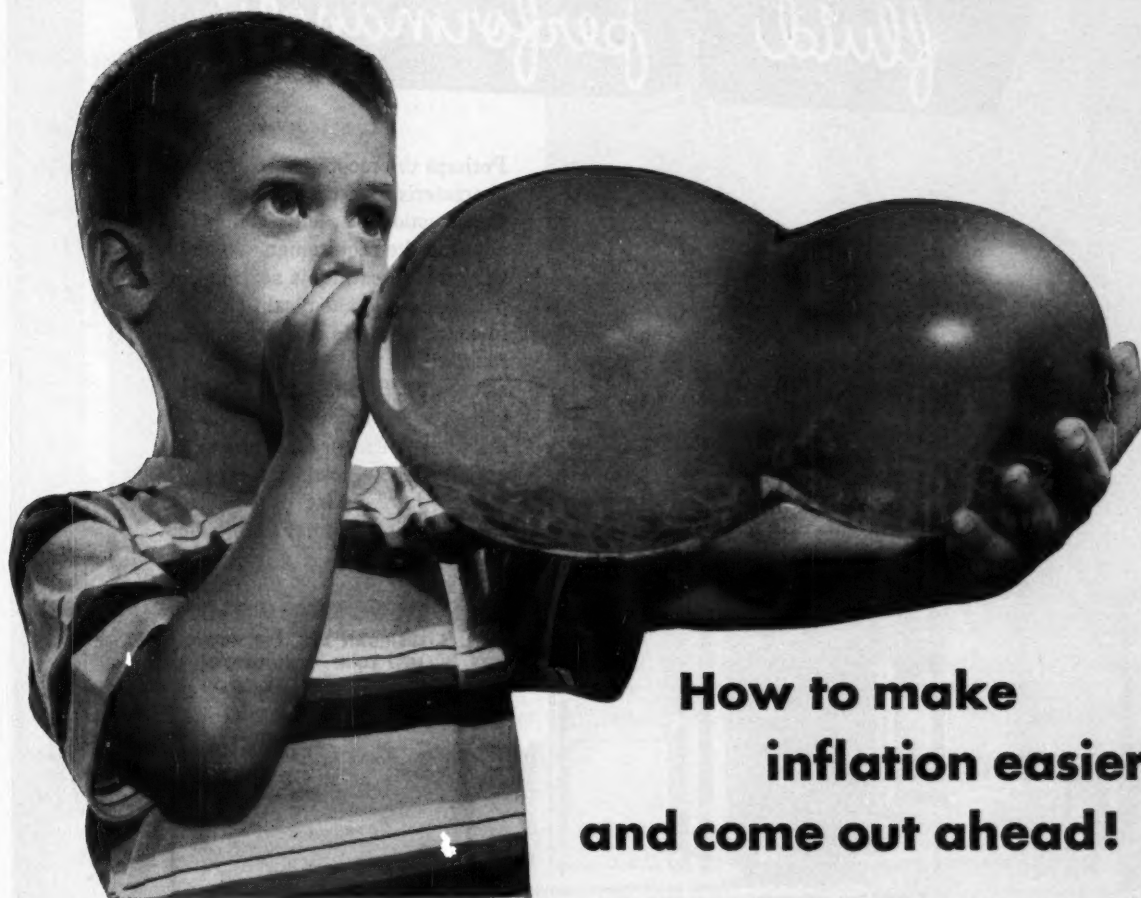
New tags read \$5/lb., drums, f.o.b. that city.

## SELECTED CHEMICAL MARKET PRICE CHANGES—Week Ending August 3, 1953

UP					
	Change	New Price		Change	New Price
Toluol, tanks, wks, (Bethlehem, Pa.) gal.	\$ .02	\$ .34	Hydrogen chloride, anhyd., c.l., wks.	.045	.45
Xylol, tanks, wks, (Bethlehem, Pa.) gal.	.02	.35	Sodium hypochlorite, tanks, (N. Y.), gal.	.015	.165
DOWN					
Dicapryl phthalate, drms., l.c.l., dlvd.	.02	.35	Isonicotinic acid, drm lots, f.o.b., Indianapolis	3.00	5.00

All prices per pound unless quantity is stated.

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using AMERICAN ANODE materials*



**How to make  
inflation easier  
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**M**OST balloons are hard for youngsters to blow up. Some balloons fail to hold gas well, or "pop" quickly in the sun. A manufacturer who had these sales problems put them up to American Anode.

Anode technicians went to work, analyzed every factor, and came up with a new and superior latex formulation. Now, the balloons are much easier to inflate—require 70 per cent less effort. Gas retention is vastly improved—100 per cent

better! Balloons can be blown up farther in advance and stay up much longer.

The new American Anode latex compound also provides excellent resistance to sunlight, which normally causes rapid deterioration. The balloons withstand exposure to sun much longer without popping.

Manufacturing costs are cut, too. Because the new latex compound does not deteriorate in stock, there

is uniformity of cure. Scrap is reduced. Production goes faster and easier. And the new compound costs no more than the formerly used material.

This is a typical example of how American Anode helps manufacturers solve problems and improve products, where latices or plastisols are involved. Perhaps we can help you. For information, please write Dept. AA-8, American Anode, 60 Cherry Street, Akron, Ohio.

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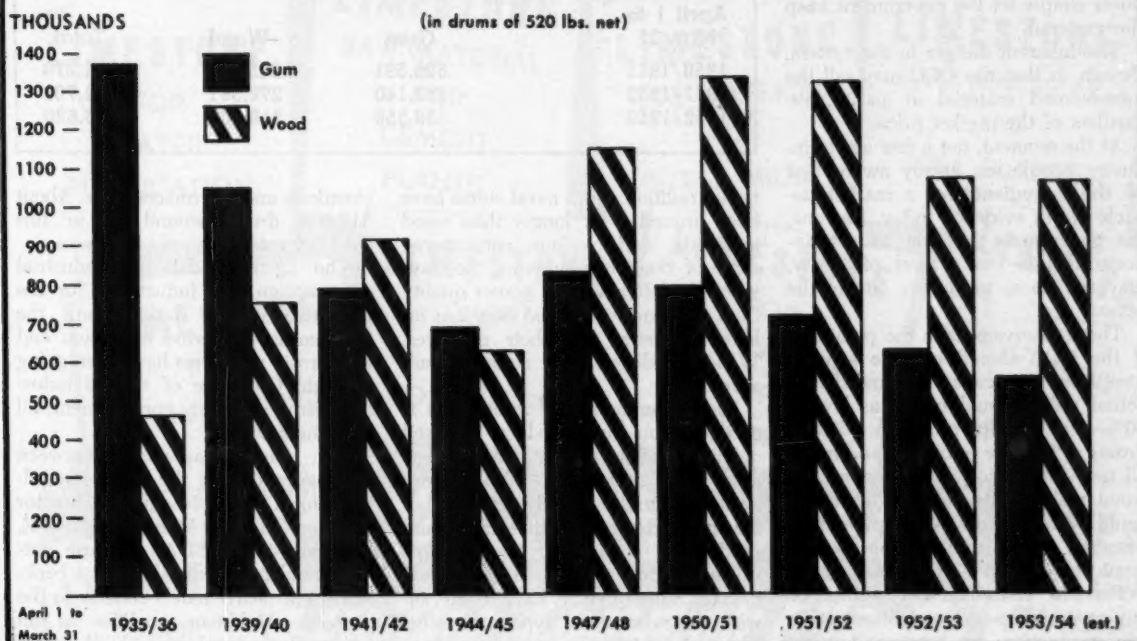
CONSTRUCTION  
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## U.S. Production—Gum and Wood Rosin



THE TREND IS DOWN: For gum, a consistent drop; for wood, slipping but comparatively better. And the future is still . . .

## Not Rosy For Rosin

Wood and gum naval stores producers share woes and hopes as rosin-consumption markets—both domestic and export—dwindle.

And a perplexing trade puzzler is this: What will the government do with its ever-increasing stocks of unredeemed gum rosin?

Other segments of the chemical process industries may be shrouded in gloom more often than naval stores,\* but none displays a more incorrigible optimism for a brighter tomorrow. As the new 1953-54 production season shifts into high gear, the trade, for the most part, again has its fingers crossed—this time hoping that last season's thumping carry-over of rosin will not be too greatly enlarged.

There are a few confirmed pessimists, though, who fear that by March 31, 1954 (end of the current season that began April 1), close to 950,000 drums (of 520 lbs. net) of gum rosin will be in government hands under

the loan program. A more generally accepted estimate pegs the possible figure at some 100,000 drums less than that. This would mean a carry-over of almost 218,000 drums added to the 633,000—as of June 30—controlled by the Commodity Credit Corp. at production and concentration centers.

**Gum Gloom:** Latest figures reveal that as of that date there were, in addition to the "loan" stock, an additional 52,000 drums of gum rosin in the U.S. "free market"—i.e., not held by the government.

Compare the situation with that prevailing a year ago and you come up with this revealing fact: since then drums in loan jumped by about 234,000; "nonloan" stocks were down 60,000 drums.

By this week a good portion of the gum rosin production is still going

under government control—half of it, some estimate.

This clearly indicates that business during the 1952-53 season was anything but booming. Production during that crop year fell off about 11% from the previous year to set an all-time record low of 638,360 drums. The continuing downward trend has become an almost chronic condition (see chart). And considered industry estimates predict another drop in '54.

**Washington Prop:** Until now gum farmers have had the advantage of government price support; for these products, unlike wood naval stores, are classified as agricultural, hence protected by the U.S. Dept. of Agriculture's parity program. This fact alone has kept many from retiring from the field. Support last year was set at 90% of parity. Here's how it worked for the benefit of the gum producer:

With the market price pegged then at about \$7.50/cwt., parity at 90% gave a support figure of about \$7.48. This included incidental costs, such as insurance, running at about 20¢. Thus when the open-market price fell below \$7.28/cwt., it was more profitable for the farmer to put his material under government loan than to sell it.

If the open price rose, he "re-

\* Includes rosin, turpentine, pinene, pine oil, dipentene, rosin oil and tall oil produced from species of southern pine trees by (1) extraction from living trees (gum naval stores), (2) extraction by solvents from steam distillation of top and stump wood (wood naval stores), (3) destructive distillation of similar wood (DD naval stores), (4) refining waste by-product of alkaline paper pulp industry (sulfate naval stores).

deemed" the rosin for the amount of the loan received, then sold it at a better profit. In the event the market remained at a lower level, the producer simply let the government keep the material.

The inherent danger in the system, though, is that the CCC may sell the unredeemed material at parity, regardless of the market price.

At the moment, not a few astute industry people are keenly aware that all the ingredients for a market debacle are in evidence today. For one, the government has not as yet announced this year's level of parity, may not do so until very late in the season.

These observers make the point that if the CCC should cut the support level from last year's 90%—and there's actual talk it could be set as low as 60%—and sell its probable 850,000 drums at the low price, it could mean all new production of both gum and wood rosin would suffer. The action could well mean drastic curtailment in domestic output until all the government stocks were liquidated.

Possible chain-reaction results of any severe drop—or outright cessation—in production: an economy-hurting rosin shortage; an inevitable hiking of prices to consumers. But while it's still a big puzzler whether or not the government would sell in the face of such an eventuality, chances are it won't. There's a precedent that supports that line of thought.

Immediately prior to the outbreak of World War II, the agency held some 1,300,000 drums—a great deal more than it does now. Shortly after the shooting began, the situation completely reversed itself; that huge amount was quickly blotted up. When that happened many were convinced the government stocks were a welcome cushion without which a raft of industries would have been severely uncomfortable.

It is more than likely that officials responsible for the decision to hold or sell unredeemed stocks are not completely convinced that even a full peace in Korea will warrant relinquishing a comforting "cushion." Then, too, rosin doesn't deteriorate, can be stored indefinitely.

**Tradition Toppler:** In contrast with the consistent decline in gum rosin production over the years, wood naval stores have been steadily riding up an escalator. This despite the fact that wood rosin producers receive no government aid, must stand on their own feet in the battle for outlets.

One factor that has at times slowed the wood product's meteoric rise is

## Gum and Wood Rosin Exported

(in drums of 520 lbs. net)

Season April 1 to Mar. 31	Gum	Wood	Total
1950/1951	595,591	345,682	941,273
1951/1952	293,140	278,561	571,701
1952/1953	138,558	218,062	356,620

trade tradition. Gum naval stores have been around a lot longer than wood materials, and various consumers—some of them remembering the days when the latter were of poorer quality than gum—are convinced they are inherently better for their purposes. Wood producers, of course, don't agree.

The remembrance of things past is a big reason gum products can sell against wood stores even at a considerable price handicap. Wood rosin, grade for grade, has always sold below gum. However, unlike most gum producers, wood rosin people have utilized chemical research to a great degree, consequently have come up with some improved types of rosins. These "specialties" are, of course, higher priced.

But for the straight grades (Water White, Window Glass, Nancy—designated in the trade by the initials WW, WG, N), the gum products still pace the price ranges, with wood prices usually trailing about 20-25¢/cwt.

Whether lower prices, greater research, more versatile operation or simply more aggressive selling is the jet-propellant, this much is certain: wood rosin, in the last seven or eight years, has consistently outstripped gum production. This is no mean feat when it is considered that of the eight or so wood naval stores producers in the field three account for nearly 90% of the productive capacity. A percentage lineup runs something like this: Hercules Powder, 41%; Newport Industries, 26%, and Crosby Chemicals, 20%.

Of the three, Newport is actually the biggest seller of rosin as such. Hercules, though tops in facilities, is often a customer; it uses more rosin than it turns out, principally in its synthetic resins and paper sizing operations.

**Ruffled Reports:** According to USDA's Bureau of Agricultural Economics, paper and paper size continues as the top consuming outlet for rosin. In the past year some 398,000 drums went to this industry. Running a comparatively close second is the group labeled by the government as

chemicals and pharmaceuticals. About 317,000 drums wound up in this catch-all category.

The agency's data on industrial consumption (by industries) for the past two seasons darkly limns the far-from-happy period both gum and wood rosin producers have been going through. Only five of the 16 industries listed show any improvement; all the others are off.

One point of agreement between the two factions is the belief—crystallized for CW by Newport's Director and Foreign Sales Manager Ernest E. Holdman—that USDA's end-use pattern could be improved. With a background of nearly half a century in the business, Holdman qualifies as an expert. He feels—along with other producers—that certain of USDA's categories should be better defined.

The difficulty, Holdman adds, lies in the fact that consumers are reluctant to classify their uses accurately. For instance, one year rosin use might be reported under chemicals, the next year that same outlet might wind up under synthetic resins or even paint, varnish and lacquer. The practice makes for a distorted consumption picture, beclouds any accurate indication of just which industrial use is increasing, which falling.

Producers themselves have little idea exactly what changes should be wrought. They do, however, suggest as a starter the consolidation of some of the government's present categories.

**Cogent Culprits:** But these are only minor irritants when compared with the major chafings—decreasing production, slipping sales, and rapidly evaporating export markets.

Most cogent is the disappearance of suitable-size trees into the maws of the booming kraft paper industry in the South. The pulp mills consume more than 25 million tons of trees a year. Unfortunately the mills take the trees just before they're "ripe" for gum-tapping.

Another rosin depressant—lack of labor—is even more pertinent. Gum tapping has been a generation-to-generation occupation. But the recent industrial revolution in the South has

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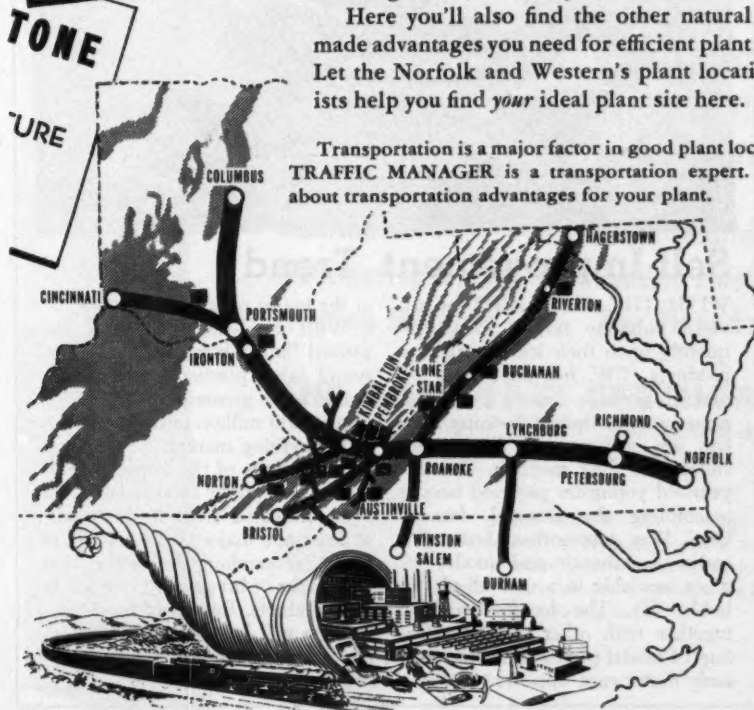
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## MARKETS . . . . .

all but eliminated the old-time low-paid, unskilled plantation worker.

Concomitant increasing costs of producing gum naval stores have done much to chop production. According to the American Turpentine-Farmers Assn.'s recently re-elected president, Judge Harley Langdale, 1952 saw the highest cost in the history of the industry. Such upped expenses are squeezing many firms right out of the market.

Dwindling export business, which normally takes half of U.S. production, is also adding some broad sweeps of black to an already grey industry picture. The dramatic drop since the peak Korean-year boom is pointed up by the figures in the table on page 62.

Prime reason for the loss in foreign business is supposedly due to shortage of American dollars. But a more potent cause may well be that prices of U.S. rosin are 10 to 20%

higher than those in other naval stores-producing countries. It is frequently pointed out that although England and Germany (two good customers) have had dollars available to buy U.S. naval stores, they have purchased most of their needed supplies from other countries at cheaper prices.

**Not Bright, Not Despairing:** As said before, no other industry looks to the future with such hope. Wood rosin producers—Hercules is a good example—are finding a modicum of ease in making and selling upgraded products derived from their rosin and turpentine, e.g., the insecticide toxaphene.

On the other hand, gum rosin producers are pinning their hopes on a double peg: research, to develop new uses and to increase consumption; and a program to improve its marketing techniques. Neither comes a moment too soon.



## Self-Improvement Trend?

WITH THE SPOTLIGHT of adverse publicity turned more frequently upon their less satisfactory products (CW, July 25), some toy makers, perhaps sensing a possible puncturing of their ballooning market, are seeking new lines more suitable to their medium. The six-year-old youngster pictured here is assembling the General, famous Civil War locomotive, first of a series of authentic scale-model engines available in a new all-plastic hobby kit. The locomotive line, together with other makers' offerings of model prairie schooners and early motor cars, appears to be one

of the better plastic adaptations.

With vinyl-skin dolls and improved "inflatables" swelling year-round sales, plastics are now estimated to be garnering roughly 25% of an \$800 million-plus (retail value) plaything market.

Well aware of the importance of continued public enthusiasm for toys fabricated from its materials, at least one major plastics supplier is now researching the factors that may make or break good will for its end products. Results of the investigation will be applied to improving design, fostering consumer acceptance.

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## The Chips Are Down

For nearly 15 years there has been a sure-bet atmosphere in the synthetic fiber game—and a fascinated chemical industry has been happily gambling with its store of \$100-million chips. But this optimistic aura is fast fading. Last week's report (CW, Aug. 1) that the textile industry is less than enthusiastic about the revolution taking place on its looms is confirmed this week with the news that the synthetics in general—and the acrylics in particular—are having a mild-to-serious sales shakeout.

Most seriously affected—both commercially and publicity-wise—is Chemstrand's Acrilan. One report puts the company's production at its new \$30-million Decatur, Ala., plant at only one-sixth of capacity. But Acrilan has company in its troubles. Du Pont is producing Orlon staple at less than its plant's rated capacity; some forms of nylon are reported as "soft" for the first time in over a decade; and Union Carbide is subtly changing its Dynel sales pitch to avoid potential complications.

And that provides an important insight into present-day synthetic fiber thinking. The "man-made" or "miracle" tag is no longer an automatic door-opener. Differences between the various synthetics are now being stressed—a sure sign of burgeoning competition. UCC is no longer happy about the general misconception that Dynel (40% acrylonitrile, 60% vinyl chloride) is an "acrylic" synthetic. Now UCC is carefully explaining that "there is as much difference between Dynel and the acrylics as there is between wool and cotton."

**Trouble:** Today's acrylic difficulties stem mainly from the usual clashing of gears that occurs when a new production or a new improvement is suddenly thrown on the market. In Orlon's case, it is the result of the introduction of "Type 42"—an improved staple that claims greater dyeing versatility. Reports, neither confirmed nor denied by the company, are that Du Pont accomplished this change by adding 6% methyl acrylate to the fiber. But besides changing the dyeing attributes, the addition also altered some of the product's other characteristics. Adjustments had to be made on spinning and weaving routines; new fabric constructions had to be developed and tested—in spring months when the textile companies should have been gearing up for full-scale fall and win-

ter production runs. The new Orlon consequently missed this year's boat—a misfortune reflected in today's fiber sales slump. Also helping to tarnish Orlon's escutcheon is the report that old-style Orlon is now selling in secondary textile markets at \$1.35/lb. against a Du Pont tag of \$1.90.

A similar—but more serious—gear change is at the root of Acrilan's sufferings. Chemstrand banked heavily on a massive promotion campaign last fall and winter, and sustained both consumer demand and textile-industry outlets for its new acrylic fiber by

carefully parceling out the limited production from its Marcus Hook, Del., pilot plant. Theoretically the distribution channels were broad enough to take the sudden surge of Acrilan that would flood from the Decatur plant.

But unforeseen was the fact that Decatur's fiber is not a perfect match for Marcus Hook's product. Textile processors have had to revise their handling methods. Some have become discouraged with the fiber. It is a strong filament, but this strength is achieved at the expense of brittleness.

Without doubt, Chemstrand will eventually solve such technical problems. But in the meantime, the textile outlets are drying up—and an unsatisfied consumer demand can't be kept alive forever. Decatur's race with time is ample proof that a synthetic fiber bet is a sure thing no longer.



LOADING: Caustic barge takes on cargo at Niagara River pier.

## Caustic Port: Niagara Falls

A Chemical Tankers' barge, the Oil Transfer #33, late last week slipped alongside a Chicago River dock and began to unload its cargo: liquid 50% caustic soda from Hooker's Niagara Falls plant. The company hailed it as the first regular shipment of bulk-barged caustic into the Chicago district. Moreover, it was only a few weeks ago that the same barge had unloaded Niagara Falls caustic at Weehawken, N.J., in the metropolitan New York area. Hooker's new east-west operations signaled the debut of Niagara Falls as a major caustic port. This development is, of course, just one more example of the growing importance of inland waterways to chemical commerce. Hooker's beat into Chicago will soon be matched by a

similar movement into that city by caustic barges from Penn Salt's plant at Calvert City, Ky. And the New York deliveries follow a route pioneered over 17 years ago by Wyandotte Chemicals. Wyandotte, in fact, has had two vessels in this service: the motorship *Michigan* (1,500-ton capacity) and the barge *Atlantic* (2,000 tons), both operated by the Michigan-Atlantic Corp.

Hooker's innovation will, however, practically double the amount of chemical traffic on the historic Erie Canal, now a part of the New York State Barge Canal system. The canal is benefiting from the general resurgence of all inland waterways, but until the middle of last month the New York system had carried only

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26,000 tons of chemicals during 1953 (vs. nearly 1.5 million tons of petroleum products). Nearly all of this chemical tonnage can be attributed to the Wyandotte shipments; therefore the Hooker additions—also caustic—will have a material effect.

**On the Lake:** The Niagara Falls company's new interest in water-borne transport—both west to Chicago and southeast to New York—stems in large part from the logistics of its now abuilding plant at Montague on the eastern shore of Lake Michigan, a few miles north of Muskegon. This location is ideally suited for the use of barges and railroad car floats for both incoming and outgoing shipments.

To lay the groundwork for a major move into the Chicago market, Hooker contracted with the Lake-River Terminal for the construction of a 1-million-gal. caustic storage tank. It is into this tank that Chemical Tankers' barge emptied last week. Eventually a second barge—Michigan Marine's *East Winds*—will be put into service by Hooker to supply its Chicago requirements. This will release the *Oil Transfer #33* for the Niagara Falls-to-New York run exclusively.

To handle these latter shipments, the Hudson Tank Storage Co. has provided a million gallons of storage capacity at its Weehawken terminal. And at Niagara Falls, Hooker has run a caustic line to the loading pier of the nearby Empire Builders' Supply Co. With these new facilities at its disposal, Hooker is well equipped to expand its fledgling water-borne trade.

**Spanish Mirage:** An unusual buying-selling case is now before the New York Supreme Court. An international-trade promoter, Paul Berlitz, is suing Commercial Solvents Corp. for \$822,450, claiming the CSC failed to go through with an arrangement making Berlitz its exclusive sales agent in Spain. CSC insists that no agreement had been made.

**Solvent Station:** The Bauer-Brown Solvents Co. has been formed in Louisville, Ky., to store and market commercial solvents in that area.

**DMF Depot:** The Grasselli Dept. of Du Pont has established a new warehousing and shipping point for dimethyl formamide at its Grasselli, N.J., facilities.

**New Orleans Outlet:** The Columbia-Southern Chemical Corp. has opened a new sales office in New Orleans, La., with T. R. Rudolf as manager.

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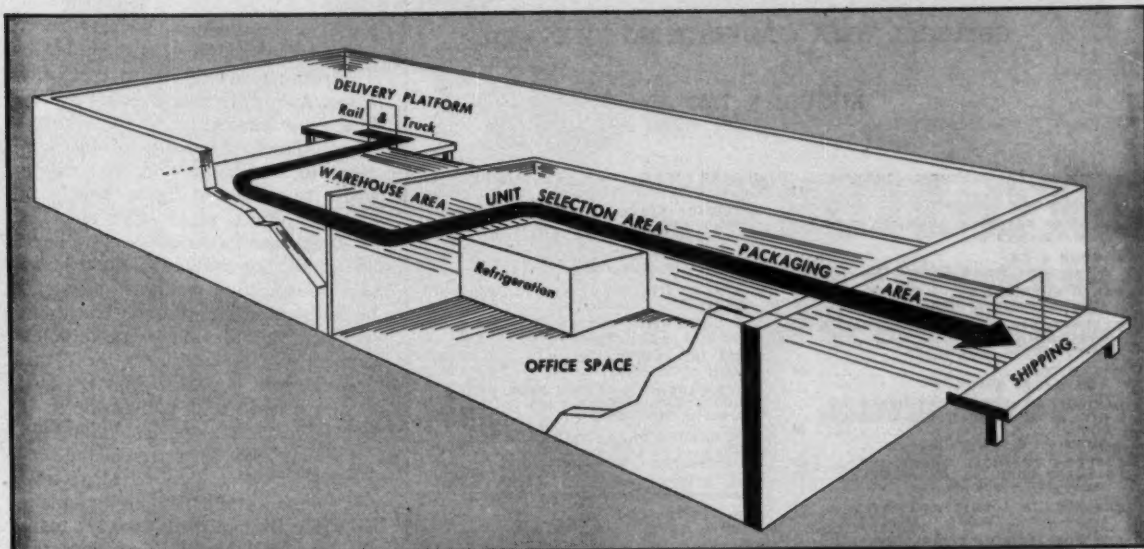
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STANDARDIZED: One-story, smoothly organized warehouse plan is heart of Wyeth's . . .



RELOCATION AIMS: Wyeth's Beeson (left) and Bishop pore over blueprints . . .



. . . for a new facility to replace this New York warehouse, soon to be vacated.

## Warehousing Off the City Streets

A multimillion-dollar program completely overhauls Wyeth Laboratories' branch warehouse organization.

The plan: a 15-city relocation away from the crowded streets and into standardized built-for-lease buildings.

Within a week or two, Philadelphia's Wyeth Laboratories will have made its decision: it will have selected one of three potential New Jersey sites as the location for its new New York-area warehouse and sales office. Within months the new building (built for lease) will have been completed, and

Wyeth will move its facilities and personnel out of the company-owned six-story headquarters on crowded Spring St. in lower Manhattan.

It will be the latest step of the Quaker City pharmaceutical firm's national program. Similar changes have already been accomplished at

Dallas, Los Angeles, Minneapolis, Boston, Memphis, Cleveland, Kansas City, Mo. And still in the planning stage are relocations for San Francisco, Seattle, Baltimore, Denver, Atlanta, Chicago, Philadelphia.

Wyeth's program is an attack on a problem that besets many an old, established\* firm. Cities have mushroomed in the past few decades; transportation methods have steadily changed tempo; warehouse locations that were ideal just a few years ago

\* Wyeth will be a hundred years old in 1960.



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BUSINESS MGR. A. J. Mangold	
Atlanta 3.....Robert H. Sidor, 1321 Rhodes-Haverty Bldg., Walnut 5778-2383	
Chicago 11.....Alfred D. Becker, Jr., Steven J. Shaw, 520 N. Michigan Ave., Mohawk 4-5800	
Cleveland 15.....Vaughan K. Dinsette, 1510 Hanna Bldg., Superior 7000	
Dallas 1.....James Cash, First National Bank Bldg., Prospect 7-5064	
Los Angeles 17.....Jos. H. Allen, 1111 Wilshire Blvd., Madison 6-4323	
New York 36.....Knox Armstrong, Robert S. Muller, L. Charles Todaro, 330 West 42 St., Longacre 4-3000	
Philadelphia 3.....William B. Hannum, Jr., Charles F. Onasch, Architects Bldg., 17th & Sansom Sts., Rittenhouse 6-0670	
San Francisco 4.....Ralph E. Dorland, 68 Post St., Douglas 2-4600	
Boston 16.....350 Park Square Building, Hubbard 2-7160	
Detroit 26.....856 Penobscot Bldg., Woodward 2-1793	
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St. Louis 8.....2615 Olive St., Continental Bldg., Lucas 4867	

## DISTRIBUTION . . . .

are now burdensome weights on a company's distribution system.

Wyeth's problem was particularly acute. As a drug firm, it deals mainly in a great number of small-packaged items. Truck shipments (both from plant to warehouse and from warehouse to customer) figure largely in its distribution plans. But most of its warehouse locations were swallowed up in city traffic. Valuable hours and dollars were fruitlessly spent on bucking shipments through congested sections that no longer represented profitable marketing areas. Since this problem was repeated in city after city, relocation on a nationwide scale seemed to be the logical solution.

**Standardized:** In charge of the program is Wyeth's Vice-President Russell Beeson. Implementing the plans is Harold Bishop, the company's manager of warehousing. Their first step was to settle on a standard plan for all of the new facilities. Because the buildings would be away from built-up areas, one easy decision was to keep the warehouses only one story high. This saves on the expense and nuisance of stairways and elevators, permits a smooth-flow path for materials between the receiving platform at one end of the building and the shipping dock at the other.

With labor costs the most important item in warehouse operations, Beeson and Bishop located the storage, make-up and packaging areas to keep steps at a minimum. Bins, shelves, and refrigeration equipment are also standardized so that efficiency innovations developed at one warehouse can be readily adapted to all of the others.

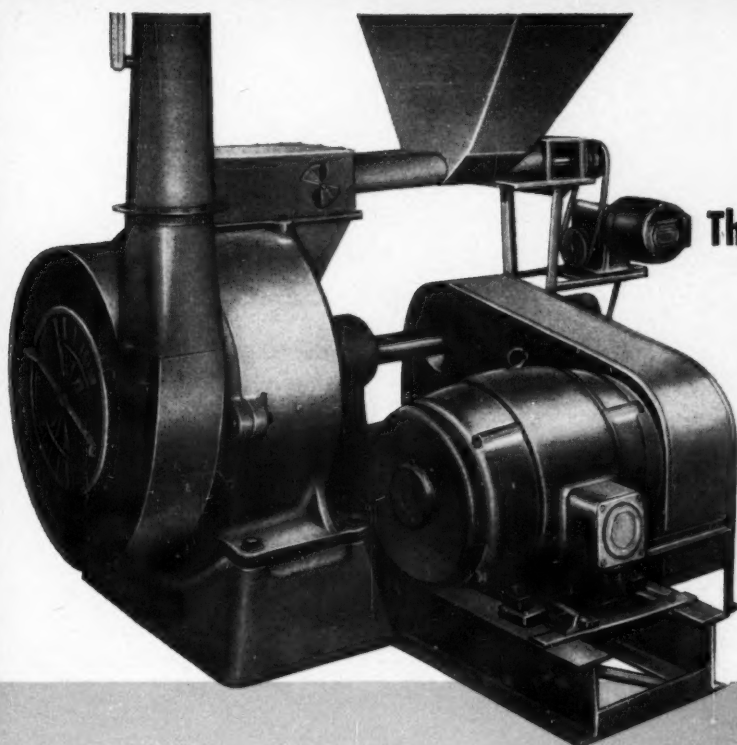
But more important than these unique-to-Wyeth criteria are the firm's generally applicable standards:

- The potential location must be serviced by both a rail line and a truck highway. This gives double protection against tie-ups by either route.
- There must be adequate land for off-the-street parking of heavy trailer trucks and employees' cars.
- For maximum efficiency, the warehouse should be reasonably close to the terminal warehouse used by local trucking concerns.

To fulfill these desires, Wyeth made its first move—in Dallas—from a busy city street to a spot in the industrial district west of the Trinity River.

The New York move now being initiated is expected to have the same beneficial results. Wyeth is, in fact, planning to move its entire Manhattan sales force along with the warehouse stocks. And when this job is completed, Beeson and Bishop will tackle their next problem: Atlanta.





The new

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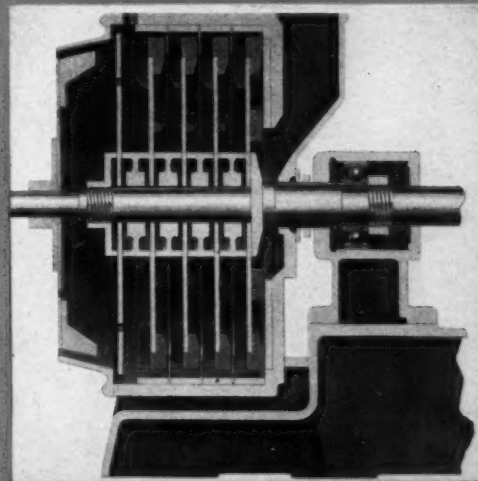
SALES ENGINEER NEAREST YOU.



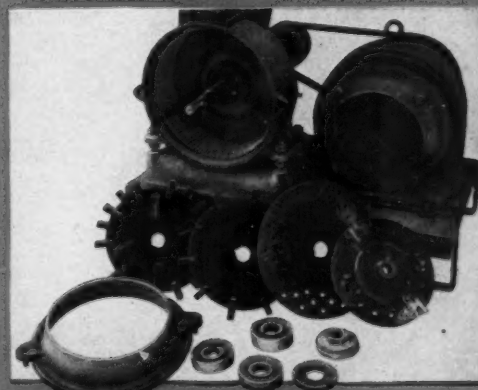
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